

# WRANGELL MARINE SERVICE CENTER CONCRETE PAVING PHASE II PROJECT MANUAL



Prepared by:



9360 Glacier Highway, Suite 100  
Juneau, Alaska 99801

**FEBRUARY 2013**

**SECTION 00005 - TABLE OF CONTENTS**

**DIVISION 0 - BIDDING AND CONTRACT REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT**

**BIDDING and CONTRACT REQUIREMENTS No. of Pages**

00005	Table of Contents .....	3
00030	Notice Inviting Bids .....	2
00100	Instructions to Bidders .....	7
00300	Bid .....	2
00310	Bid Schedule .....	4
00320	Bid Bond .....	1
00360	Subcontractor Report .....	2

**CONTRACT FORMS**

00500	Agreement .....	7
00610	Performance Bond .....	2
00620	Payment Bond .....	2

**CONDITIONS OF THE CONTRACT**

00700	General Conditions .....	46
00800	Supplementary General Conditions .....	3
00830	Alaska Labor Standards, Reporting & Prevailing Wage Rate Determination ....	1
00852	Permits.....	2
00853	Standard Details .....	6

**DIVISION 1 - GENERAL REQUIREMENTS**

01010	Summary of Work.....	4
01025	Measurement and Payment.....	12
01045	Cutting and Patching .....	3
01070	Acronyms of Institutions .....	3
01090	Reference Standards .....	2
01300	Contractor Submittals.....	8
01400	Quality Control.....	2
01500	Field Office.....	1
01505	Mobilization .....	1
01520	Security.....	1
01530	Protection and Restoration of Existing Facilities .....	4
01550	Site Access and Storage .....	5
01560	Temporary Environmental Controls .....	2
01570	Erosion Control .....	1
01600	Materials and Equipment .....	2
01700	Project Close-out.....	2
01704	Final Clean-up and Site Restoration.....	1

**SECTION 00005 - TABLE OF CONTENTS**

**DIVISION 2 – SITEWORK**

02060	Demolition, Salvage and Disposal .....	1
02202	Excavation and Embankment .....	4
02203	Trench Excavation, Backfill & Bedding .....	5
02204	Base Course .....	3
02205	Riprap .....	2
02401	Sanitary Sewer Pipe.....	5
02502	Storm Sewer Manholes, Inlets, and Catch Basins .....	3
02601	Water Pipe .....	8
02602	Valves .....	3
02702	Construction Surveying .....	2
02707	Chain Link Fence .....	3
02714	Geotextile Reinforcement.....	2

**DIVISION 3 – CONCRETE**

03301	Structural Concrete.....	18
03302	Concrete Paving .....	5

**TECHNICAL SPECIFICATIONS**

**DIVISION 16 – ELECTRICAL**

**No. of Pages**

16060	Grounding and Bonding .....	3
16073	Hangers and Supports for Electrical Systems .....	4
16075	Electrical Identification .....	4
16120	Conductors and Cables .....	4
16130	Raceways and Boxes .....	7
16475	Shore-Tie Pedestals .....	4

<b>SUBMITTAL REGISTER.....</b>	<b>8</b>
--------------------------------	----------

**DRAWING INDEX**

SHEET NO.	DRAWING NO.	TITLE
1 of 18	1.01	Cover Sheet, Vicinity Map, & Drawing Index
2 of 18	1.02	Legend, Abbreviations, & General Notes
3 of 18	1.03	Existing Conditions and Survey Control
4 of 18	1.04	Demolition Site Plan
5 of 18	2.01	Overall Site Plan and Final Grade Contours
6 of 18	2.02	Site Plan – Partial Area 1
7 of 18	2.03	Site Plan – Partial Area 1, Area 1A and Add. Alt. D.
8 of 18	2.04	Site Plan – Area 2A, Area 3A, Area 1B, and Add. Alt. C.
9 of 18	2.05	Site Plan – Area 2, Area 3, Add. Alt. A. and Add. Alt. B.
10 of 18	2.06	Overall Site Plan Water And Sewer

## SECTION 00005 - TABLE OF CONTENTS

SHEET NO.	DRAWING NO.	TITLE
11 of 18	3.01	Site Sections
12 of 18	3.02	Typical Sections @ 12" Thick Concrete Slab
13 of 18	3.03	Typical Sections @ 14" Thick Concrete Slab
14 of 18	3.04	Typical Sections and Details
15 of 18	3.05	Typical Sections and Details
16 of 18	3.06	Storm Drain Details
17 of 18	3.07	Miscellaneous Details
18 of 18	3.08	Fencing Details

### ELECTRICAL

1 of 8	E1.00	Overall Site Plan
2 of 8	E1.01	Existing Site Plan
3 of 8	E1.02	Existing Site Photos
4 of 8	E2.01	Partial Site Plan – New
5 of 8	E2.02	Single Line Diagrams
6 of 8	E2.03	Schedule & Details
7 of 8	E2.04	Wiring Diagrams
8 of 8	E2.05	Details

**END OF SECTION**

## SECTION 00030 - NOTICE INVITING BIDS

**OBTAINING CONTRACT DOCUMENTS.** The Contract Documents are entitled:

### **WRANGELL MARINE SERVICE CENTER – CONCRETE PAVING PHASE II**

Notice is hereby given that the City and Borough of Wrangell, Alaska will receive sealed bids for the construction of Wrangell Marine Service Center – Concrete Paving Phase II.

The Contract Documents, including one set of reduced scale drawings, may be obtained at the office of the Borough Clerks Office, 205 Brueger Street, Wrangell, Alaska 99929 (Ph. 907-874-2381). A non-refundable fee of \$50.00 made payable to the City and Borough of Wrangell is required for each set of contract documents. Additional charges will be required for special handling or delivery of the documents by means other than first class mail. The Contract Documents may also be downloaded free of charge on the City and Borough of Wrangell website ([www.wrangell.com](http://www.wrangell.com)) under the Bids and RFP's section. Downloading Contract Documents from the City and Borough of Wrangell's website requires registration with the Borough Clerk in order to be placed on the Plan holders List and to ensure receipt of subsequent Addenda. Failure to register may adversely affect your proposal. It is the Offeror's responsibility to insure that they have received all Addenda affecting this Solicitation. To be registered, contact the Borough Clerk at 907-874-2381 or at [clerk@wrangell.com](mailto:clerk@wrangell.com)

**DESCRIPTION OF WORK.** WORK consists of all activities necessary to construct the Wrangell Marine Center - Concrete Paving Phase II as shown in the contract documents. Work includes demolition and disposal, excavation, geotextile, shot rock borrow, base course, concrete paving, water system, sewer system, and bollards. The Engineer's Estimate for the Base Bid is approximately \$4.4 million. The Engineer's Estimate for Additive Alternate A is approximately \$0.8 million. The Engineer's Estimate for Additive Alternate B is approximately \$0.4 million. The Engineer's Estimate for Additive Alternate C is approximately \$0.3 million. The Engineer's Estimate for Additive Alternate D is approximately \$0.1 million.

**SITE OF WORK.** The WORK is located in downtown Wrangell, Alaska adjacent to the Nolan Center and Wrangell Seafoods.

**COMPLETION OF WORK.** The OWNER will open the work site to the CONTRACTOR immediately following the Notice to Proceed. All WORK under the contract documents shall be completed by **August 15, 2014**. Other interim completion dates are outlined in the contract documents.

**BIDDING, CONTRACT, or TECHNICAL QUESTIONS.** All communications relative to this WORK, prior to opening Bids, shall be directed to the following:

Amber Al-Haddad  
Project Manager  
Telephone: (907) 874-3494

**PRE-BID CONFERENCE.** Prospective bidders are encouraged to attend a Pre-Bid Conference that will be held in Wrangell on **February 21, 2013** beginning at 11:00 AM at the City and Borough Council Chambers at City Hall. The purpose of the conference is to acquaint Bidders with site conditions, construction phasing and answer questions on bid documents. Attendance by teleconference will be available by calling **Dial-in number: Dial 1 (888) 550-5602 and enter access code 3273 9103.**

**BID SECURITY.** Each bid shall be accompanied by a bid bond, cashier's check or certified check made payable to the City and Borough of Wrangell in the amount of five percent of the total bid price. This serves as a guarantee that the Bidder, if its Bid is accepted, will promptly execute the Agreement. A Bid shall not be considered unless one of the forms of Bidder's security is enclosed with it.

**SECTION 00030 - NOTICE INVITING BIDS**

**RECEIPT OF BIDS.** Sealed bids will be received by the City and Borough of Wrangell, Post Office Box 531, Wrangell, Alaska 99929, located at the Borough Clerk's Office, 205 Brueger Street, Wrangell, Alaska 99929 until 2:00 PM prevailing time on **March 05, 2013**. Opening date and time may be changed to a later date or time via Addendum. Clearly mark on the outside of the envelope "**Request for bids, Marine Service Center - Concrete Paving Phase II, Opening Date March 05, 2013**". Proposals may not be withdrawn for ninety days following date of opening.

**OPENING OF BIDS.** The Bids will be publicly opened and read at 2:00 PM on **March 05, 2013** in the City Council Chambers of the City and Borough of Wrangell, Alaska.

**SUBCONTRACTORS.** The apparent low Bidder is required to complete and submit the following documentation within five calendar days following the posting of bids by the City and Borough of Wrangell:

- City and Borough of Wrangell Finance Department Verification, Section 00300.
- Subcontractor Report, Section 00360.

**CONTRACTOR'S LICENSE.** All contractors are required to submit a copy of their current Alaska Contractor's License and a current Alaska Business License with the bid.

**BID TO REMAIN OPEN.** The Bidder shall guarantee the Bid for a period of 90 Days from the date of Bid opening. Any component of the Bid including additive alternates may be awarded anytime during the 90 Days.

**OWNER'S RIGHTS RESERVED.** The OWNER reserves the right to reject any or all Bids, to waive any informality in a Bid, and to make award to the lowest responsive, responsible Bidder as it may best serve the interests of the OWNER.

**OWNER: the City and Borough of Wrangell**

By: \_\_\_\_\_  
Timothy Rooney, City and Borough Manager

\_\_\_\_\_  
Date

**END OF SECTION**

## SECTION 00100 - INSTRUCTIONS TO BIDDERS

**1.0 DEFINED TERMS.** Terms used in these “Instructions to Bidders” and the “Notice Inviting Bids” which are defined in the General Conditions have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a Bid directly to the OWNER, as distinct from a sub-bidder, who submits a Bid to a Bidder.

### **2.0 INTERPRETATIONS AND ADDENDA.**

A. **INTERPRETATIONS.** All questions about the meaning or intent of the Contract Documents are to be directed to the Project Manager. Interpretations or clarifications considered necessary by the Project Manager in response to such questions will be issued by Addendum, mailed, faxed, or delivered to all parties recorded by the Project Manager, or OWNER, as having received the Contract Documents. Questions received less than (7) seven days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect.

B. **ADDENDA.** Addenda may be issued to modify the Contract Documents as deemed advisable by the OWNER. The OWNER may issue addenda by fax or email. Addenda may be faxed or emailed less than seven Days prior to the anticipated Bid opening. The OWNER will make all reasonable attempts to ensure that all plan holders receive faxed addenda, however, it is strongly recommended by the OWNER that Bidders independently confirm the contents, number, and dates of each Addenda prior to submitting a Bid.

**3.0 FAIR COMPETITION.** More than one Bid from an individual, firm, partnership, corporation, or association under the same or different names will not be considered. If the OWNER believes that any Bidder is interested in more than one Bid for the WORK contemplated, all Bids in which such Bidder is interested will be rejected. If the OWNER believes that collusion exists among the Bidders, all Bids will be rejected.

**4.0 RESPONSIBLE BIDDER.** Only responsive Bids from responsible Bidders will be considered. A Bid submitted by a Bidder determined to be not responsible may be rejected. A responsible Bidder is one who is considered to be capable of performing the WORK.

A. The general standards for responsibility are to determine the CONTRACTOR’s ability to perform WORK adequately, considering the CONTRACTOR’s

1. Financial Resources
2. Ability to Meet Delivery Standards
3. Past Performance Record
  - a. References from others on CONTRACTOR’s performance
  - b. Record of performance on prior OWNER contracts
4. Record of Integrity
5. Obligations to OWNER
  - a. Bidders must be registered as required by law and in good standing for all amounts owed to the OWNER within five Days of OWNER’s Notice of Intent to Award.

## SECTION 00100 - INSTRUCTIONS TO BIDDERS

- b. The City and Borough of Wrangell administers the registration and assessment of sales, business personal property and business real property taxes.
- B. Special standards for responsibility, if applicable, will be specified. These special standards establish minimum standards or experience required for a responsible Bidder on a specific contract.
- C. Before a Bid is considered for award, a Bidder may be requested to submit information documenting its ability and competency to perform the WORK, according to general standards of responsibility and any special standards which may apply. It is Bidder's responsibility to submit sufficient, relevant, and adequate information. OWNER will make its determination of responsibility and has no obligation to request clarification or supplementary information.

**5.0 RESPONSIVE BIDS.** Only responsive Bids will be considered. Bids may be considered non-responsive and may be rejected. Some of the reasons a Bid may be rejected for being non-responsive are:

- A. If the Bid is on a form other than that furnished by the OWNER, or legible copies thereof; or if the form is altered or any part thereof is detached; or if the Bid is improperly signed.
- B. If there are unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the proposal incomplete, indefinite, or ambiguous as to its meaning.
- C. If the Bidder adds any unauthorized conditions, limitations, or provisions reserving the right to accept or reject any award, or to enter into a contract pursuant to an award. This does not exclude a Bid limiting the maximum gross amount of awards acceptable to any one Bidder at any one bid opening, provided that any selection of awards will be made by the OWNER.
- D. If the Bid does not contain a unit price for each pay item listed, except in the case of authorized alternate pay items.
- E. If the Bidder has not acknowledged receipt of each Addendum.
- F. If the Bidder fails to furnish an acceptable Bid guaranty with the Bid.
- G. If any of the unit prices Bid are excessively unbalanced (either above or below the amount of a reasonable Bid) to the potential detriment of the OWNER.
- H. If a bid modification does not conform to Article 15.0 of this Section.

**6.0 BIDDER'S EXAMINATION OF CONTRACT DOCUMENTS AND SITE.** It is the responsibility of each Bidder before submitting a Bid:

- A. To examine thoroughly the Contract Documents, and other related data identified in the bidding documents (including "technical data" referred to below):
  - 1. To visit the site to become familiar with and to satisfy the Bidder as to the general and local conditions that may affect cost, progress, or performance, of the WORK,



## SECTION 00100 - INSTRUCTIONS TO BIDDERS

2. To consider federal, state and local laws and regulations that may affect cost, progress, or performance of the WORK,
3. To study and carefully correlate the Bidder's observations with the Contract Documents, and other related data; and
4. To notify the ENGINEER of all conflicts, errors, or discrepancies in or between the Contract Documents and such other related data.

### 7.0 REFERENCE IS MADE TO THE SUPPLEMENTARY GENERAL CONDITIONS FOR IDENTIFICATION OF:

- A. Those reports of explorations and tests of subsurface conditions at the site which have been utilized by the Engineer of Record in the preparation of the Contract Documents. The Bidder may rely upon the accuracy of the technical data contained in such reports, however, the interpretation of such technical data, including any interpolation or extrapolation thereof, together with non-technical data, interpretations, and opinions contained therein or the completeness thereof is the responsibility of the Bidder.
- B. Those drawings of physical conditions in or relating to existing surface and subsurface conditions (except underground utilities) which are at or contiguous to the site have been utilized by the Engineer of Record in the preparation of the Contract Documents. The Bidder may rely upon the accuracy of the technical data contained in such drawings, however, the interpretation of such technical data, including any interpolation or extrapolation thereof, together with non-technical data, interpretations, and opinions contained in such drawings or the completeness thereof is the responsibility of the Bidder.
- C. Copies of such reports and drawings will be made available by the OWNER to any Bidder on request if said reports and drawings are not bound herein. Those reports and drawings are not part of the Contract Documents, but the technical data contained therein upon which the Bidder is entitled to rely, as provided in Paragraph SGC-4.2 of the Supplementary General Conditions, are incorporated herein by reference.
- D. Information and data reflected in the Contract Documents with respect to underground utilities at or contiguous to the site is based upon information and data furnished to the OWNER and the Engineer of Record by the owners of such underground utilities or others, and the OWNER does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary General Conditions, or in Section 01530 - Protection and Restoration of Existing Facilities.
- E. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, underground utilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.2, 4.3, and 4.4 of the General Conditions.
- F. Before submitting a Bid, each Bidder will, at its own expense, make or obtain any additional examinations, investigations, explorations, tests, and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface, and underground utilities) at or contiguous to the site or otherwise which may affect cost, progress, or performance of the WORK and which the Bidder deems necessary to determine its Bid for performing the WORK in accordance with the time, price, and other terms and conditions of the Contract Documents.

## SECTION 00100 - INSTRUCTIONS TO BIDDERS

- G. On request in advance, the OWNER will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and shall clean up and restore the site to its former condition upon completion of such explorations.
- H. The lands upon which the WORK is to be performed, rights-of-way and easements for access thereto and the lands designated for use by the CONTRACTOR in performing the WORK are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by the CONTRACTOR. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by the OWNER unless otherwise provided in the Contract Documents.
- I. The submission of a Bid will constitute an incontrovertible representation by the Bidder that the Bidder has complied with every requirement of Article 6, "Bidder's Examination of Contract Documents and Site" herein, that without exception the Bid is premised upon performing the WORK required by the Contract Documents and such means, methods, techniques, sequences, or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the WORK.

### 8.0 BID FORM.

- A. The Bid shall be made on the Bid Schedule(s) bound herein, or on the yellow bid packet provided, or on legible and complete copies thereof, and shall contain the following: Sections 00300, 00310, and the required Bid Security. In the event there is more than one Bid Schedule, the Bidder may bid on any individual schedule or on any combination of schedules. The envelope enclosing the sealed Bids shall be plainly marked in the upper left-hand corner with the name and address of the Bidder and shall bear the words "BID FOR," followed by the title of the Contract Documents for the WORK, the name of the OWNER, the address where Bids are to be delivered or mailed to, and the date and hour of opening of Bids. The Bid Security shall be enclosed in the same envelope with the Bid.
- B. All blanks on the Bid Form and Bid Schedule must be completed in ink or typed.
- C. Bids by corporations must be executed in the corporate name by the president, a vice-president (or other corporate officer). The corporate address and state of incorporation must appear below the signature.
- D. Bids by partnerships must be executed in the partnership name and be signed by a managing partner, and the official address of the partnership must appear below the signature.
- E. The Bidder's Bid must be signed with ink. All names must be printed or typed below the signature.
- F. The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form. Failure to acknowledge Addenda shall render Bid non-responsive and shall cause its rejection.

## SECTION 00100 - INSTRUCTIONS TO BIDDERS

- G. The address to which communications regarding the Bid are to be directed must be shown.
- H. All Bidders must provide evidence of authority to conduct business in Alaska to the extent required by law.
- I. On Projects including Federal funding any contractor otherwise qualified to perform the WORK, is not required to be licensed nor to submit application for license in advance of submitting a Bid or having such Bid considered; provided, however, that such exemption does not constitute a waiver of the OWNER's right under existing license laws to require a contractor, determined to be a successful Bidder, to be licensed to do business as a contractor in the State of Alaska in connection with the award of a contract to the successful Bidder.
- J. On Projects not including Federal funding, a Bid for the WORK will not be accepted from a contractor who does not hold a valid Alaska Business License and a valid Contractor's License in Alaska (applicable to the type of work bid upon) at the time of opening Bids.
- 9.0 QUANTITIES OF WORK.** The quantities of WORK, or material, stated in unit price items of the Bid are supplied only to give an indication of the general scope of the WORK; the OWNER does not expressly or by implication agree that the actual amount of WORK, or material, will correspond therewith, and reserves the right after award to increase or decrease the amount of any unit price item of the WORK by an amount up to and including 25 percent of any Bid item, without a change in the unit price, and shall include the right to delete any Bid item in its entirety, or to add additional Bid items up to and including an aggregate total amount not to exceed 25 percent of the Contract Price (see General Conditions, Article 10 Changes In the Work).
- 10.0 SUBSTITUTE OR "OR-EQUAL" ITEMS.** The procedure for the submittal of substitute or "or-equal" products is specified in Section 01300 - CONTRACTOR SUBMITTALS.
- 11.0 SUBMISSION OF BIDS.** The Bid shall be delivered by the time and to the place stipulated in the Notice Inviting Bids. It is the Bidder's sole responsibility to see that its Bid is received in proper time. Oral, telegraphic, telephonic or faxed Bids will not be considered.
- 12.0 BID SECURITY, BONDS, AND INSURANCE.** Each Bid shall be accompanied by a certified, or cashier's check, or approved Bid Bond in an amount of at least 5 percent of the total Bid price. The "total Bid price" is the amount of the base bid, plus the amount of alternate bids, if any, which total to the maximum amount for which the contract could be awarded. Said check or Bond shall be made payable to the OWNER and shall be given as a guarantee that the Bidder, if offered the WORK, will enter into an Agreement with the OWNER, and will furnish the necessary insurance certificates, Payment Bond, and Performance Bond; each of said Bonds, if required, and insurance amounts shall be as stated in the Supplementary General Conditions. In case of refusal or failure to enter into said Agreement, the check or Bid Bond, as the case may be, shall be forfeited to the OWNER. If the Bidder elects to furnish a Bid Bond as its Bid security, the Bidder shall use the Bid Bond form bound herein, or one conforming substantially to it in form. Bid Bonds must be accompanied by a legible power of attorney.
- 13.0 RETURN OF BID SECURITY.** Within 14 Days after award of the contract, the OWNER will return the Bid securities accompanying such of the Bids as are not considered in making the award. All other Bid securities will be held until the Agreement has been executed. They will then be returned to the respective Bidders whose Bids they accompanied.

## SECTION 00100 - INSTRUCTIONS TO BIDDERS

**14.0 DISCREPANCIES IN BIDS.** In the event there is more than one pay item in a Bid Schedule, the Bidder shall furnish a price for all pay items in the schedule, and failure to do so may render the Bid non-responsive and cause its rejection. In the event there are unit price pay items in a Bid Schedule, and the "amount" indicated for a unit price pay item does not equal the product of the unit price and quantity, the unit price shall govern and the amount will be corrected accordingly, and the Bidder shall be bound by said correction. In the event there is more than one pay item in the Bid Schedule and the total indicated for the schedule does not agree with the sum of the prices bid on the individual items, the prices bid on the individual items shall govern and the total for the schedule will be corrected accordingly, and the Bidder shall be bound by said correction.

**15.0 BID MODIFICATIONS AND UNAUTHORIZED ALTERNATIVE BIDS.**

- A. Any Bidder may modify a Bid by mail, telegram, email (**clerk@wrangell.com**), or fax (**Fax: 907-874-3952**) at any time prior to the scheduled closing time for receipt of Bids, provided that such modification is received by the City and Borough of Wrangell prior to the time set for opening of Bids. Bidders are strongly advised to telephone the City and Borough of Wrangell (Telephone: 907-874-2381), prior to the time set for opening Bids, to confirm the successful and timely transmission of their electronic Bid modification.

A telegram or fax modification should not reveal the Bid price but should provide the addition or subtraction or other modification so that the final prices will not be known by the City and Borough of Wrangell until the sealed Bid is opened. Modifications shall include both the modification of the unit bid price and the total modification of each item modified. The City and Borough of Wrangell shall not be responsible for its failure to receive fax modifications whether such failure is caused by transmission line problems, electronically delivered device problems, operator error or otherwise.

- B. Unauthorized conditions, limitations, or provisos attached to the Bid will render it informal and cause its rejection as being non-responsive. The completed bid forms shall be without interlineation, alterations, or erasures in the printed text. All changes shall be initialed by the person signing the Bid. Alternative bids will not be considered unless called for.

**16.0 WITHDRAWAL OF BID.** The Bid may be withdrawn by the Bidder by means of a written request, signed by the Bidder or its properly authorized representative. Such written request must be delivered to the place stipulated in the Notice Inviting Bids for receipt of Bids prior to the scheduled closing time for receipt of Bids.

**17.0 AWARD OF CONTRACT.**

- A. Award of a contract, if it is awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Technical Specifications and will be made to the lowest responsive, responsible Bidder whose Bid complies with all the requirements prescribed. Unless otherwise specified, any such award will be made within the period stated in the Notice Inviting Bids that the Bids are to remain open. Unless otherwise indicated, a single award will be made for all the bid items in an individual Bid Schedule.
- B. In the event the WORK is contained in more than one Bid Schedule, the OWNER may award schedules individually or in combination. In the case of two Bid Schedules which are alternative to each other, only one of such alternative schedules will be awarded.

## SECTION 00100 - INSTRUCTIONS TO BIDDERS

- C. If the OWNER has elected to advertise this Project with a base bid and additive or deductive alternates, the OWNER may elect to award the contract for the base bid, or the base bid plus any alternates, in any combination of alternates as selected by the OWNER. In either case, award shall be made to the responsive, responsible Bidder offering the lowest total bid for the WORK to be awarded.

### 18.0 EXECUTION OF AGREEMENT.

- A. All Bids less than or equal to \$25,000 do not require Wrangell Borough Assembly approval. The Bidder to whom award is made for a Bid that is more than \$25,000 shall execute a written agreement with the OWNER on the Agreement form, Section 00500, and shall secure all insurance and any other documents required by the contract within 10 calendar Days from the date stated in the Notice of Intent to Award letter.
- B. All Bids greater than \$25,000 must be approved by the Wrangell Borough Assembly. After the Wrangell Borough Assembly has approved the award, the OWNER will issue of Notice of Intent to Award to the approved Bidder. The Bidder to whom award is made shall execute a written Agreement with the OWNER on the Agreement form, Section 00500, and shall secure all insurance and furnish all certificates and bonds required by the Contract Documents within 10 calendar Days from the date stated in the Notice of Intent to Award letter.
- C. Failure or refusal to enter into the Agreement as herein provided or to conform to any of the stipulated requirements in connection therewith shall be just cause for annulment of the award and forfeiture of the Bid security. If the lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the OWNER may award the contract to the second lowest responsive, responsible Bidder. If the second lowest responsive, responsible Bidder refuses or fails to execute the Agreement, the OWNER may award the contract to the third lowest responsive, responsible Bidder. On the failure or refusal of such second or third lowest Bidder to execute the Agreement, each such Bidder's Bid securities shall be likewise forfeited to the OWNER.

**19.0 LIQUIDATED DAMAGES.** Provisions for liquidated damages if any are set forth in Section 00500 - Agreement.

**20.0 PERMITS.** The CONTRACTOR is responsible for all WORK associated with meeting any local, state, and/or federal permit requirements.

**END OF SECTION**

**SECTION 00300 - BID**

**BID TO: THE CITY AND BOROUGH OF WRANGELL**

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with the OWNER on the form included in the Contract Documents (as defined in Article 7 of Section 00500 - AGREEMENT) to perform the WORK as specified or indicated in said Contract Documents entitled

**WRANGELL MARINE SERVICE CENTER – CONCRETE PAVING PHASE II**

2. Bidder accepts all of the terms and conditions of the Contract Documents, including without limitation those in the “Notice Inviting Bids” and “Instructions to Bidders,” dealing with the disposition of the Bid Security.

3. This Bid will remain open for the period stated in the “Notice Inviting Bids” unless otherwise required by law. Bidder will enter into an Agreement within the time and in the manner required in the “Notice Inviting Bids” and the “Instructions to Bidders,” and will furnish insurance certificates, Payment Bond, Performance Bond, and any other documents as may be required by the Contract Documents.

4. Bidder has familiarized itself with the nature and extent of the Contract Documents, WORK, site, locality where the WORK is to be performed, the legal requirements (federal, state and local laws, ordinances, rules, and regulations), and the conditions affecting cost, progress or performance of the WORK and has made such independent investigations as Bidder deems necessary.

5. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

6. To all the foregoing, and including all Bid Schedule and information required of Bidder contained in this Bid Form, said Bidder further agrees to complete the WORK required under the Contract Documents within the Contract Time stipulated in said Contract Documents, and to accept in full payment therefor the Contract Price based on the total bid price(s) named in the aforementioned Bid Schedule.

7. Bidder has examined copies of all the Contract Documents including the following Addenda (receipt of all of which is hereby acknowledged by the Undersigned):

Addenda No.	Date Issued	Addenda No.	Date Issued

**Give number and date of each Addenda above. Failure to acknowledge receipt of all Addenda will cause the Bid to be non-responsive and shall cause its rejection.**

**SECTION 00300 - BID**

8. The Bidder has read this Bid and agrees to the conditions as stated herein by signing in the space provided below.

Dated: _____	Bidder: _____ (Company Name)
	By: _____ (Signature in Ink)
Alaska Business License No.: _____	Printed Name: _____
Contractor's License No.: _____	Title: _____
Telephone No.: _____	Address: _____ (Street or P.O. Box)
Fax No.: _____	_____ (City, State, Zip)

9. TO BE CONSIDERED, ALL BIDDERS MUST COMPLETE AND INCLUDE THE FOLLOWING AT THE TIME OF THE BID OPENING:

- Signed Bid, Section 00300 (includes Addenda receipt statement)
- Completed Bid Schedule, Section 00310
- Bid Security (Bid Bond, Section 00320, or by a certified or cashier's check as stipulated in the Notice Inviting Bids, Section 00030)
- Contractor's License and Alaska Business License

10. Unless otherwise notified by the Borough Manager within (5) calendar days of posting the apparent low bidder, the apparent low Bidder is required to complete and submit the following documents:

- Subcontractor Report, Section 00360
- Verification from Wrangell Finance Department that Subcontractors are current with City and Borough of Wrangell Sales and Property Taxes, Section 00360

The apparent low Bidder who fails to submit a completed Subcontractor Report within the time specified in Section 00360 – Subcontractor Report will be found to be not a responsible Bidder and may be required to forfeit the Bid security. The OWNER will then consider the next lowest Bidder for award of the contract.

11. The successful Bidder will be required to submit, within ten calendar Days after the date stated in the "Notice of Intent to Award" letter, the following executed documents:

- Agreement Forms, Section 00500
- Performance Bond, Section 00610
- Payment Bond, Section 00620
- Certificates of Insurance, (CONTRACTOR and Subcontractors) Section 00700 and Section 00800
- Alaska Department of Labor/Borough Clerk, Subcontractor List, Section 00830.
- One executed copy of each subcontract for WORK that exceeds one half of one percent of the intended contract award amount.

**END OF SECTION**

**SECTION 00310 - BID SCHEDULE**

**BASE BID**

Pay Item No.	Pay Item Description	Pay Unit	Approximate Quantity	Unit Price		Amount	
				Dollars	Cents	Dollars	Cents
1500.1	Field Office	LS	All Req'd				
1505.1	Mobilization	LS	All Req'd				
2060.1	Demolition and Disposal	LS	All Req'd				
2202.1	Foundation Sub-excavation	CY	3,800				
2202.2	Foundation Backfill	CY	3,800				
2202.3	Class A Shot Rock Borrow	CY	3,800				
2202.4	Test Pits	EA	20				
2203.1	Trench Excavation, Backfill & Bedding	LF	275				
2204.1	Base Course, Grading C-1	CY	825				
2204.2	Salvage, Stockpile & Place Base Course, Grading C-1	CY	1,650				
2205.1	Riprap	LS	All Req'd				
2401.1	Sanitary Sewer Pipe, 8-Inch DI	LF	240				
2401.2	Sanitary Sewer Cleanout	EA	3				
2502.1	Adjust Storm Drain Inlet to Finish Grade	EA	5				
2502.2	Oil Water Separator	EA	1				
2502.3	Storm Drain Outlet Structure	EA	1				
2601.1	8-Inch DIP Water Pipe	LF	40				
2601.2	6-Inch HDPE Water Pipe	LF	125				
2602.1	6-Inch Gate Valve	EA	2				
2702.1	Construction Surveying	LS	All Req'd				
2707.2	16' Cantilever Rolling Gate	EA	2				
2714.1	Geotextile Reinforcement	SY	12,100				



**SECTION 00310 - BID SCHEDULE**

**BASE BID**

Pay Item No.	Pay Item Description	Pay Unit	Approximate Quantity	Unit Price		Amount	
				Dollars	Cents	Dollars	Cents
3303.3	Curb and Gutter	LF	55				
3305.1	Reinforced Concrete Pavement	SY	7,525				
3305.2	Reinforced Concrete Pavement Over Sawdust	SY	4,670				
16000.1	Electrical	LS	All Req'd				

**TOTAL BASE BID AMOUNT IN FIGURES: \$** \_\_\_\_\_  
**TOTAL BASE BID AMOUNT**  
**IN WORDS:** \_\_\_\_\_

**ADDITIVE ALTERNATE 'A'**

Pay Item No.	Pay Item Description	Pay Unit	Approximate Quantity	Unit Price		Amount	
				Dollars	Cents	Dollars	Cents
1505.1-A	Mobilization	LS	All Req'd				
2060.1-A	Demolition and Disposal	LS	All Req'd				
2204.2-A	Salvage, Stockpile & Place Base Course, Grading C-1	CY	400				
2702.1-A	Construction Surveying	LS	All Req'd				
2714.1-A	Geotextile Reinforcement	SY	700				
3305.2-A	Reinforced Concrete Pavement Over Sawdust	SY	2,225				

**TOTAL ADDITIVE ALTERNATE 'A' AMOUNT IN FIGURES: \$** \_\_\_\_\_  
**TOTAL ADDITIVE ALTERNATE 'A' AMOUNT**  
**IN WORDS:** \_\_\_\_\_

**ADDITIVE ALTERNATE 'B'**

Pay Item No.	Pay Item Description	Pay Unit	Approximate Quantity	Unit Price		Amount	
				Dollars	Cents	Dollars	Cents
1505.1-B	Mobilization	LS	All Req'd				

**SECTION 00310 - BID SCHEDULE**

Pay Item No.	Pay Item Description	Pay Unit	Approximate Quantity	Unit Price		Amount	
				Dollars	Cents	Dollars	Cents
2060.1-B	Demolition & Disposal	LS	All Reqd				
2202.1-B	Foundation Sub-excavation	CY	500				
2202.2-B	Foundation Backfill	CY	500				
2202.3-B	Class A Shot Rock Borrow	CY	350				
2202.4-B	Test Pits	EA	2				
2204.2-B	Salvage, Stockpile & Place Base Course, Grading C-1	CY	225				
2702.1-B	Construction Surveying	LS	All Reqd				
2714.1-B	Geotextile Reinforcement	SY	1,100				
3305.1-B	Reinforced Concrete Pavement	SY	686				
3305.2-B	Reinforced Concrete Pavement Over Sawdust	SY	588				

**TOTAL ADDITIVE ALTERNATE 'B' AMOUNT IN FIGURES: \$** \_\_\_\_\_  
**TOTAL ADDITIVE ALTERNATE 'B' AMOUNT IN WORDS:** \_\_\_\_\_

**COMPANY NAME:** \_\_\_\_\_

**ADDITIVE ALTERNATE 'C'**

Pay Item No.	Pay Item Description	Pay Unit	Approximate Quantity	Unit Price		Amount	
				Dollars	Cents	Dollars	Cents
1505.1-C	Mobilization	LS	All Reqd				
2060.1-C	Demolition & Disposal	LS	All Reqd				
2202.1-C	Foundation Sub-excavation	CY	300				
2202.2-C	Foundation Backfill	CY	300				
2202.3-C	Class A Shot Rock Borrow	CY	150				
2202.4-C	Test Pits	EA	2				

**SECTION 00310 - BID SCHEDULE**

Pay Item No.	Pay Item Description	Pay Unit	Approximate Quantity	Unit Price		Amount	
				Dollars	Cents	Dollars	Cents
2204.2-C	Salvage, Stockpile & Place Base Course, Grading C-1	CY	175				
2702.1-C	Construction Surveying	LS	All Req'd				
2714.1-C	Geotextile Reinforcement	SY	800				
3305.1-C	Reinforced Concrete Pavement	SY	394				
3305.2-C	Reinforced Concrete Pavement Over Sawdust	SY	588				

**TOTAL ADDITIVE ALTERNATE 'C' AMOUNT IN FIGURES: \$** \_\_\_\_\_

**TOTAL ADDITIVE ALTERNATE 'C' AMOUNT**

**IN WORDS:** \_\_\_\_\_

**COMPANY NAME:** \_\_\_\_\_

**ADDITIVE ALTERNATE 'D'**

Pay Item No.	Pay Item Description	Pay Unit	Approximate Quantity	Unit Price		Amount	
				Dollars	Cents	Dollars	Cents
1505.1-D	Mobilization	LS	All Req'd				
2060.1-D	Demolition & Disposal	LS	All Req'd				
2202.1-D	Foundation Sub-excavation	CY	215				
2202.2-D	Foundation Backfill	CY	215				
2202.3-D	Class A Shot Rock Borrow	CY	215				
2202.4-D	Test Pits	EA	2				
2204.1-D	Base Course, Grading C-1	CY	70				
2702.1-D	Construction Surveying	LS	All Req'd				
2714.1-D	Geotextile Reinforcement	SY	412				
3305.1-D	Reinforced Concrete Pavement	SY	412				

**TOTAL ADDITIVE ALTERNATE 'D' AMOUNT IN FIGURES: \$** \_\_\_\_\_

**TOTAL ADDITIVE ALTERNATE 'D' AMOUNT**

**SECTION 00310 - BID SCHEDULE**

**IN WORDS:** \_\_\_\_\_  
**COMPANY NAME:** \_\_\_\_\_

**SECTION 00320 - BID BOND**

KNOW ALL PERSONS BY THESE PRESENTS, that \_\_\_\_\_  
\_\_\_\_\_ as Principal, and \_\_\_\_\_  
as Surety, are held and firmly bound unto **THE CITY AND BOROUGH OF WRANGELL** hereinafter  
called  
"OWNER," in the sum of \_\_\_\_\_  
\_\_\_\_\_dollars, (not less than five percent of the total amount of the Bid) for the  
payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators,  
successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has submitted a Bid to said OWNER to perform the WORK required  
under the Bid Schedule of the OWNER's Contract Documents entitled

**WRANGELL MARINE SERVICE CENTER – CONCRETE PAVING PHASE II**

NOW THEREFORE, if said Principal is awarded a contract by said OWNER and, within the time and  
in the manner required in the "Notice Inviting Bids" and the "Instructions to Bidders" enters into a written  
Agreement on the form of Agreement bound with said Contract Documents, furnishes the required certificates  
of insurance, and furnishes the required Performance Bond and Payment Bond, then this obligation shall be  
null and void, otherwise it shall remain in full force and effect. In the event suit is brought upon this bond by  
said OWNER and OWNER prevails, said Surety shall pay all costs incurred by said OWNER in such suit,  
including a reasonable attorney's fee to be fixed by the court.

SIGNED AND SEALED, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_

(SEAL) \_\_\_\_\_  
(Principal)

(SEAL) \_\_\_\_\_  
(Surety)

By: \_\_\_\_\_  
(Signature)

By: \_\_\_\_\_  
(Signature)

**SECTION 00360 - SUBCONTRACTOR REPORT**

**LIST OF SUBCONTRACTORS**

The apparent low Bidder must submit a list of Subcontractors that the Bidder proposes to use in the performance of this contract and all Subcontractor Sales Tax Forms by close of business on the fifth calendar day following the posting notice of Bids. If the fifth calendar day falls on a weekend or holiday, the report is due by close of business on the next business day following the weekend or holiday. The list must include each Subcontractor's name, address, location, evidence of valid Alaska Business License, and valid Alaska Contractor's Registration under AS 08.18. *If no Subcontractors are to be utilized in the performance of the WORK, write in ink or type "NONE" on line (1) below.*

<u>SUBCONTRACTOR</u>	<sup>1</sup> AK Contractor <u>License No.</u>	<sup>1</sup> <u>Contact Name</u>	<u>Type of</u>	<u>Contract</u>	<input type="checkbox"/>
<u>ADDRESS</u>	<sup>2</sup> AK Business <u>License No.</u>	<sup>2</sup> <u>Phone No.</u>	<u>Work</u>	<u>Amount</u>	<input type="checkbox"/> <sup>√</sup> if <u>DBE</u>
1. _____ _____ _____	1 _____ 2 _____	_____ _____	_____ _____	\$ _____	<input type="checkbox"/>
2. _____ _____ _____	1 _____ 2 _____	_____ _____	_____ _____	\$ _____	<input type="checkbox"/>
3. _____ _____ _____	1 _____ 2 _____	_____ _____	_____ _____	\$ _____	<input type="checkbox"/>
4. _____ _____ _____	1 _____ 2 _____	_____ _____	_____ _____	\$ _____	<input type="checkbox"/>

I certify that the above listed Alaska Business License(s) and CONTRACTOR Registration(s), if applicable, were valid at the time Bids were opened for this Project.

\_\_\_\_\_  
CONTRACTOR, Authorized Signature

\_\_\_\_\_  
CONTRACTOR, Printed Name

A. A Bidder may replace a listed Subcontractor if the Subcontractor:

## SECTION 00360 - SUBCONTRACTOR REPORT

1. fails to comply with AS 08.18;
  2. files for bankruptcy or becomes insolvent;
  3. fails to execute a contract with the Bidder involving performance of the WORK for which the Subcontractor was listed and the Bidder acted in good faith;
  4. fails to obtain bonding;
  5. fails to obtain insurance acceptable to the OWNER;
  6. fails to perform the contract with the Bidder involving work for which the Subcontractor was listed;
  7. must be substituted in order for the CONTRACTOR to satisfy required state and federal affirmative action requirements;
  8. refuses to agree or abide with the Bidder's labor agreement; or
  9. is determined by the OWNER not to be a responsible Bidder.
- B. If a Bidder fails to list a Subcontractor or lists more than one Subcontractor for the same portion of WORK, the Bidder shall be considered to have agreed to perform that portion of WORK without the use of a Subcontractor and to have represented the Bidder to be qualified to perform that WORK.
- C. A Bidder who attempts to circumvent the requirements of this section by listing as a Subcontractor another contractor who, in turn, sublets the majority of the WORK required under the contract violates this section.
- D. If a contract is awarded to a Bidder who violates this section, the OWNER may:
1. cancel the contract; or
  2. after notice and a hearing, assess a penalty on the Bidder in an amount that does not exceed 10 percent of the value of the subcontract at issue.
- E. For contract award, the apparent low Bidder must submit one copy of each subcontract, to the Project Manager, for WORK with a value of greater than one half of one percent of the intended award amount.
- F. An apparent low Bidder who fails to submit a completed Subcontractor Report within the time specified in this section will be found to be not a responsible Bidder and may be required to forfeit the Bid security. The OWNER will then consider the next lowest Bidder for award of the contract.

**END OF SECTION**

## SECTION 00500 - AGREEMENT

THIS AGREEMENT is between THE CITY AND BOROUGH OF WRANGELL (hereinafter called OWNER) and \_\_\_\_\_ (hereinafter called CONTRACTOR) OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

### ARTICLE 1. WORK.

**CONTRACTOR shall complete the WORK as specified or as indicated under the Bid Schedule of the OWNER'S Contract Documents entitled.**

#### **WRANGELL MARINE SERVICE CENTER – CONCRETE PAVING PHASE II**

The WORK consists of all activities necessary to construct the Wrangell Marine Center Concrete Paving as shown in the contract documents. The facility includes demolition and disposal, excavation, geotextile, shot rock borrow, base course, concrete paving, storm drain system, water system, sewer system, bollards, and miscellaneous appurtenant work items. The WORK is comprised of a Base Bid and Additive Alternates A - D.

The WORK to be paid under this contract shall include the following: Base Bid, Additive Alternate A through Additive Alternates D, as selected and awarded by the OWNER and shown in Section 00310 - Bid Schedule.

### ARTICLE 2. CONTRACT COMPLETION TIME.

The WORK completion schedule is: The OWNER will open the site to the CONTRACTOR concurrently with the **Notice to Proceed**. The contract completion times shall be in accordance with the table as follows:

DESCRIPTION (ITEM)	EARLIEST START (DATE)	SUBSTANTIAL COMPLETION (DATE)
AREA 1 - SUBSTANTIAL COMPLETION	NOTICE TO PROCEED (NTP)	JUNE 14, 2013
AREA 1A - SUBSTANTIAL COMPLETION	(NTP)	JUNE 14, 2013
AREA 1B - SUBSTANTIAL COMPLETION	JUNE 14, 2013	JULY 8, 2013
AREA 2 - SUBSTANTIAL COMPLETION	JULY 1, 2013	SEPTEMBER 1, 2013
AREA 2A - SUBSTANTIAL COMPLETION	JULY 1, 2013	SEPTEMBER 1, 2013
AREA 3 - SUBSTANTIAL COMPLETION	SEPTEMBER 1, 2013	NOVEMBER 20, 2013
AREA 3A - SUBSTANTIAL COMPLETION	SEPTEMBER 1, 2013	NOVEMBER 20, 2013
ADDITIVE ALTERNATE A SUBSTANTIAL COMPLETION	MAY 15, 2014	JUNE 30, 2014
ADDITIVE ALTERNATE B SUBSTANTIAL COMPLETION	JULY 1, 2014	AUGUST 15, 2014
ADDITIVE ALTERNATE C SUBSTANTIAL COMPLETION	JULY 1, 2014	AUGUST 15, 2014
ADDITIVE ALTERNATE D	SPRING 2014	AUGUST 15, 2014



**SECTION 00500 - AGREEMENT**

SUBSTANTIAL COMPLETION		
------------------------	--	--

Notes:

1. Substantial completion shall be met when the concrete has achieved 80% f'c compressive strength requirement.

**ARTICLE 3. DATE OF AGREEMENT**

The date of this Agreement will be the date of the last signature on page three of this section.

**ARTICLE 4. LIQUIDATED DAMAGES.**

OWNER and the CONTRACTOR recognize that time is of the essence of this Agreement and that the OWNER will suffer financial loss if the WORK is not completed within the time specified in Article 2 herein, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense, and difficulties involved in proving in a legal proceeding the actual damages suffered by the OWNER if the WORK is not completed on time. Accordingly, instead of requiring any such proof, the OWNER and the CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) the CONTRACTOR shall pay the OWNER per the table as follows:

**SECTION 00500 - AGREEMENT**

DESCRIPTION (ITEM)	EARLIEST START (DATE)	SUBSTANTIAL COMPLETION (DATE)	LIQUIDATED DAMAGES (PER DAY)
AREA 1 - SUBSTANTIAL COMPLETION	NOTICE TO PROCEED (NTP)	JUNE 14, 2013	\$1,500.00
AREA 1A - SUBSTANTIAL COMPLETION	NTP	JUNE 14, 2013	\$1,500.00
AREA 1B - SUBSTANTIAL COMPLETION	JUNE 14, 2013	JULY 8, 2013	\$1,500.00
AREA 2 - SUBSTANTIAL COMPLETION	JULY 1, 2013	SEPTEMBER 1, 2013	\$1,500.00
AREA 2A - SUBSTANTIAL COMPLETION	JULY 1, 2013	SEPTEMBER 1, 2013	\$1,500.00
AREA 3 - SUBSTANTIAL COMPLETION	SEPTEMBER 1, 2013	NOVEMBER 20, 2013	\$1,500.00
AREA 3A - SUBSTANTIAL COMPLETION	SEPTEMBER 1, 2013	NOVEMBER 20, 2013	\$1,500.00
ADDITIVE ALTERNATE A SUBSTANTIAL COMPLETION	MAY 15, 2014	JUNE 30, 2014	\$1,500.00
ADDITIVE ALTERNATE B SUBSTANTIAL COMPLETION	JULY 1, 2014	AUGUST 15, 2014	\$1,500.00
ADDITIVE ALTERNATE C SUBSTANTIAL COMPLETION	JULY 1, 2014	AUGUST 15, 2014	\$1,500.00
ADDITIVE ALTERNATE D SUBSTANTIAL COMPLETION	SPRING 2014	AUGUST 15, 2014	\$1,500.00

for each Calendar Day that expires after each individual area completion date listed above. Assessment of liquidated damages shall be cumulative for all areas of work that are delayed. The amount of liquidated damages specified above is agreed to be a reasonable estimate based on all facts known as of the date of this Agreement.

**ARTICLE 5. CONTRACT PRICE.**

OWNER shall pay CONTRACTOR for completion of the WORK in accordance with the Contract Documents in the amount set forth in the Bid Schedule. The CONTRACTOR agrees to accept as full and complete payment for all WORK to be done in this contract for: **WRANGELL MARINE SERVICE CENTER – CONCRETE PAVING PHASE II** those Unit Price amounts as set forth in the Bid Schedule in the Contract Documents for this Project.

The total amount of this contract shall be \_\_\_\_\_ (\$ \_\_\_\_\_),  
except as adjusted in accordance with the provisions of the Contract Documents.

**ARTICLE 6. PAYMENT PROCEDURES.**

## SECTION 00500 - AGREEMENT

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by the ENGINEER as provided in the General Conditions.

Progress payments will be paid in full in accordance with Article 14 of the General Conditions until ninety (90) percent of the Contract Price has been paid. The remaining ten (10) percent of the Contract Price may be retained, in accordance with applicable Alaska State Statutes, until final inspection, completion, and acceptance of the Project by the OWNER.

### ARTICLE 7. CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire Agreement between OWNER and CONTRACTOR concerning the WORK consist of this Agreement (pages 00500-1 to 00500-6, inclusive) and the following sections of the Contract Documents:

- Table of Contents (pages 00005-1 to 00005-3, inclusive)
- Notice Inviting Bids (pages 00030-1 to 00030-2, inclusive).
- Instructions to Bidders (pages 00100-1 to 00100-7, inclusive).
- Bid (pages 00300-1 to 00300-2, inclusive).
- Bid Schedule (pages 00310-1 to 00310-4, inclusive).
- Bid Bond (page 00320-1, inclusive) or Bid Security.
- Subcontractor Report (pages 00360-1 to 00360-2, inclusive).
- Performance Bond (pages 00610-1 to 00610-2, inclusive).
- Payment Bond (pages 00620-1 to 00620-2, inclusive).
- Insurance Certificate(s).
- General Conditions (pages 00700-1 to 00700-46, inclusive).
- Supplementary General Conditions (pages 00800-1 to 00800-3, inclusive).
- Labor Standards, Reporting, and Prevailing Wage Determination (pages 00830-1 and 00840-1).
- Permits (page 00852-2 and all inclusive documents).
- Technical Specifications as listed in the Table of Contents.
- Drawings consisting of 26 sheets, as listed in the Table of Contents.
- Addenda numbers \_\_\_\_\_ to \_\_\_\_\_, inclusive.
- Change Orders which may be delivered or issued after the Date of the Agreement and which are not attached hereto.

There are no Contract Documents other than those listed in this Article 7. The Contract Documents may only be amended by Change Order as provided in Paragraph 3.3 of the General Conditions.

### ARTICLE 8. MISCELLANEOUS.

Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to

the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

**SECTION 00500 - AGREEMENT**

OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents. This Agreement shall be governed by the laws of the State of Alaska. Jurisdiction shall be in the State of Alaska, First Judicial District.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have caused this Agreement to be executed on the date listed below by OWNER.

**OWNER:**

\_\_\_\_\_  
City and Borough of Wrangell

\_\_\_\_\_  
(Signature)

By: \_\_\_\_\_  
(Printed Name)

Date: \_\_\_\_\_

OWNER's address for giving notices:

\_\_\_\_\_  
PO BOX 531

\_\_\_\_\_  
Wrangell, Alaska 99929

\_\_\_\_\_  
907-874-2381      907-874-3952  
(Telephone)      (Fax)

**CONTRACTOR:**

\_\_\_\_\_  
(Company Name)

\_\_\_\_\_  
(Signature)

By: \_\_\_\_\_  
(Printed Name, Authority or Title)

Date: \_\_\_\_\_

CONTRACTOR's address for giving notices:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
(Telephone)      (Fax)

\_\_\_\_\_  
(E-mail address)

Contractor License No. \_\_\_\_\_

**SECTION 00500 - AGREEMENT**

**CERTIFICATE  
(if Corporation)**

STATE OF            )  
                          ) SS:  
COUNTY OF        )

I HEREBY CERTIFY that a meeting of the Board of Directors of the  
\_\_\_\_\_ a corporation existing under the laws of  
the State of \_\_\_\_\_, held on \_\_\_\_\_, 20\_\_\_\_, the following resolution  
was duly passed and adopted:

“RESOLVED, that \_\_\_\_\_, as \_\_\_\_\_ President  
of the Corporation, be and is hereby authorized to **execute the Agreement** with the CITY AND  
BOROUGH OF WRANGELL and this corporation and that the execution thereof, attested by the  
Secretary of the Corporation, and with the Corporate Seal affixed, shall be the official act and  
deed of this Corporation.”

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the  
corporation this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
Secretary

(SEAL)

SECTION 00500 - AGREEMENT

CERTIFICATE  
(if Partnership)

STATE OF )  
 ) SS:  
COUNTY OF )

I HEREBY CERTIFY that a meeting of the Partners of the \_\_\_\_\_ a partnership existing under the laws of the State of \_\_\_\_\_, held on \_\_\_\_\_, 20\_\_\_\_, the following resolution was duly passed and adopted:

"RESOLVED, that \_\_\_\_\_, as \_\_\_\_\_ of the Partnership, be and is hereby authorized to **execute the Agreement** with the CITY AND BOROUGH OF WRANGELL and this partnership and that the execution thereof, attested by the \_\_\_\_\_ shall be the official act and deed of this Partnership."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_\_\_, day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
Secretary

(SEAL)

SECTION 00500 - AGREEMENT

CERTIFICATE  
(if Joint Venture)

STATE OF )  
) SS:  
COUNTY OF )

I HEREBY CERTIFY that a meeting of the Principals of the \_\_\_\_\_ a joint venture existing under the laws of the State of \_\_\_\_\_, held on \_\_\_\_\_, 20\_\_\_\_, the following resolution was duly passed and adopted:

"RESOLVED, that \_\_\_\_\_, as \_\_\_\_\_ of the Joint Venture, be and is hereby authorized to **execute the Agreement** with the CITY AND BOROUGH OF WRANGELL and this joint venture and that the execution thereof, attested by the \_\_\_\_\_ shall be the official act and deed of this Joint Venture."

I further certify that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_\_\_, day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Secretary

(SEAL)

**SECTION 00610 - PERFORMANCE BOND**

KNOW ALL PERSONS BY THESE PRESENTS: That we \_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_ a \_\_\_\_\_  
(Corporation, Partnership, Individual)

hereinafter called "Principal" and \_\_\_\_\_  
(Surety)

of \_\_\_\_\_, State of \_\_\_\_\_ hereinafter called the "Surety," are held and  
firmly bound to the City and Borough of Wrangell, Alaska hereinafter called "OWNER,"  
(Owner) (City and State)

for the penal sum of \_\_\_\_\_

\_\_\_\_\_ dollars (\$ \_\_\_\_\_) in lawful money of the  
United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs,  
executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the CONTRACTOR has entered  
into a certain contract with the OWNER, the effective date of which is \_\_\_\_\_, a copy  
of which is hereto attached and made a part hereof for the construction of:

**WRANGELL MARINE SERVICE CENTER – CONCRETE PAVING PHASE II**

NOW, THEREFORE, if the Principal shall truly and faithfully perform its duties, all the  
undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof,  
and any extensions thereof, which may be granted by the OWNER, with or without notice to the Surety, and  
if it shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save  
harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall  
reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any  
default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no  
change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed  
thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond,  
and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of  
the contract or to the WORK or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall  
abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.



**SECTION 00610 - PERFORMANCE BOND**

**WRANGELL MARINE SERVICE CENTER – CONCRETE PAVING PHASE II**

IN WITNESS WHEREOF, this instrument is issued in two (2) identical counterparts, each one of which shall be deemed an original.

**CONTRACTOR:**

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Printed Name)

\_\_\_\_\_  
(Company Name)

\_\_\_\_\_  
(Street or P.O. Box)

\_\_\_\_\_  
(City, State, Zip Code)

**SURETY:**

By: \_\_\_\_\_  
(Signature of Attorney-in-Fact)

Date Issued: \_\_\_\_\_

\_\_\_\_\_  
(Printed Name)

\_\_\_\_\_  
(Company Name)

\_\_\_\_\_  
(Street or P.O. Box)

\_\_\_\_\_  
(City, State, Zip Code)

**(Affix SURETY'S SEAL)**

**NOTE: If CONTRACTOR is Partnership, all Partners must execute bond.**

**SECTION 00620 - PAYMENT BOND**

KNOW ALL PERSONS BY THESE PRESENTS: That we \_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_ a \_\_\_\_\_  
(Corporation, Partnership, Individual)

hereinafter called "Principal" and \_\_\_\_\_  
(Surety)

of \_\_\_\_\_, State of \_\_\_\_\_ hereinafter called the "Surety," are held and  
firmly bound to the City and Borough Of Wrangell, Alaska hereinafter called "OWNER,"  
(Owner) (City and State)

for the penal sum of \_\_\_\_\_

\_\_\_\_\_ dollars (\$\_\_\_\_\_) in lawful money of the  
United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs,  
executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the CONTRACTOR has entered  
into a certain contract with the OWNER, the effective date of which is \_\_\_\_\_, a copy  
of which is hereto attached and made a part hereof for the construction of:

**WRANGELL MARINE SERVICE CENTER – CONCRETE PAVING PHASE II**

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms,  
Subcontractors, and corporations furnishing materials for, or performing labor in the prosecution of the  
WORK provided for in such contract, and any authorized extension or modification thereof, including all  
amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools,  
consumed or used in connection with the construction of such WORK, and all insurance premiums on said  
work, and for all labor performed in such WORK, whether by Subcontractor or otherwise, then this obligation  
shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no  
change, extension of time, alteration or addition to the terms of the contract or to the work to be performed  
thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond,  
and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of  
the contract or to the WORK or to the Specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall  
abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

**SECTION 00620 - PAYMENT BOND**

**WRANGELL MARINE SERVICE CENTER – CONCRETE PAVING PHASE II**

IN WITNESS WHEREOF, this instrument is issued in two (2) identical counterparts, each one of which shall be deemed an original.

**CONTRACTOR:**

By: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Printed Name)

\_\_\_\_\_  
(Company Name)

\_\_\_\_\_  
(Street or P.O. Box)

\_\_\_\_\_  
(City, State, Zip Code)

**SURETY:**

By: \_\_\_\_\_  
(Signature of Attorney-in-Fact)

Date Issued: \_\_\_\_\_

\_\_\_\_\_  
(Printed Name)

\_\_\_\_\_  
(Company Name)

\_\_\_\_\_  
(Street or P.O. Box)

\_\_\_\_\_  
(City, State, Zip Code)

**(Affix SURETY'S SEAL)**

**NOTE: If CONTRACTOR is Partnership, all Partners must execute bond.**

**SECTION 00700 - GENERAL CONDITIONS**

**TABLE OF CONTENTS**

**ARTICLE 1 DEFINITIONS** ..... 00700-5

**ARTICLE 2 PRELIMINARY MATTERS**

2.1 Delivery of Bonds/Insurance Certificates ..... 00700-9  
2.2 Copies of Documents ..... 00700-9  
2.3 Commencement of Contract Time; Notice to Proceed ..... 00700-9  
2.4 Starting the WORK ..... 00700-9  
2.5 Pre-construction Conference ..... 00700-9

**ARTICLE 3 CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

3.1 Intent ..... 00700-9  
3.2 Order of Precedence of Contract Documents ..... 00700-10  
3.3 Amending and Supplementing Contract Documents ..... 00700-10  
3.4 Reuse of Documents ..... 00700-11

**ARTICLE 4 AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS**

4.1 Availability of Lands ..... 00700-11  
4.2 Physical Conditions - Subsurface and Existing Structures ..... 00700-11  
4.3 Differing Site Conditions ..... 00700-12  
4.4 Physical Conditions - Underground Utilities ..... 00700-12  
4.5 Reference Points ..... 00700-13

**ARTICLE 5 BONDS AND INSURANCE**

5.1 Performance, Payment and Other Bonds ..... 00700-13  
5.2 Insurance ..... 00700-14

**ARTICLE 6 CONTRACTOR'S RESPONSIBILITIES**

6.1 Supervision and Superintendence ..... 00700-15  
6.2 Labor, Materials, and Equipment ..... 00700-16  
6.3 Adjusting Progress Schedule ..... 00700-17  
6.4 Substitutes or "Or Equal" Items ..... 00700-17  
6.5 Concerning Subcontractors, Suppliers and Others ..... 00700-17  
6.6 Permits ..... 00700-19  
6.7 Patent Fees and Royalties ..... 00700-18  
6.8 Laws and Regulations ..... 00700-19

**SECTION 00700 - GENERAL CONDITIONS**

**ARTICLE 6 CONTRACTOR'S RESPONSIBILITIES (Cont'd.)**

6.9 Taxes ..... 00700-19  
6.10 Use of Premises..... 00700-19  
6.11 Safety and Protection ..... 00700-19  
6.12 Shop Drawings and Samples..... 00700-20  
6.13 Continuing the WORK..... 00700-21  
6.14 Indemnification ..... 00700-21  
6.15 Contractor's Daily Reports ..... 00700-22  
6.16 Assignment of Contract..... 00700-22  
6.17 Contractor's Responsibility for Utility Property and Services ..... 00700-22  
6.18 Operating Water System Valves ..... 00700-22  
6.19 CONTRACTOR's WORK Schedule Limitations ..... 00700-22

**ARTICLE 7 OTHER WORK**

7.1 Related WORK at Site ..... 00700-22  
7.2 Coordination ..... 00700-23

**ARTICLE 8 OWNER'S RESPONSIBILITIES**

8.1 Communications ..... 00700-23  
8.2 Payments ..... 00700-23  
8.3 Lands, Easements, and Surveys ..... 00700-23  
8.4 Change Orders..... 00700-23  
8.5 Inspections and Tests ..... 00700-24  
8.6 Suspension of WORK..... 00700-24  
8.7 Termination of Agreement..... 00700-24

**ARTICLE 9 ENGINEER'S STATUS DURING CONSTRUCTION**

9.1 OWNER 's Representative ..... 00700-24  
9.2 Visits to Site ..... 00700-24  
9.3 Project Representation ..... 00700-24  
9.4 Clarifications and Interpretations..... 00700-26  
9.5 Authorized Variations in WORK..... 00700-26  
9.6 Rejecting Defective WORK..... 00700-26  
9.7 CONTRACTOR Submittals, Change Orders, and Payments ..... 00700-26  
9.8 Decisions on Disputes ..... 00700-27  
9.9 Limitation on Engineer's Responsibilities..... 00700-27

**ARTICLE 10 CHANGES IN THE WORK**

10.1 General ..... 00700-28  
10.2 Allowable Quantity Variations ..... 00700-29

**ARTICLE 11 CHANGE OF CONTRACT PRICE**

**SECTION 00700 - GENERAL CONDITIONS**

11.1 General..... 00700-29  
11.2 Costs Relating to Weather..... 00700-30  
11.3 Cost of WORK (Based on Time and Materials) ..... 00700-30  
11.4 CONTRACTOR's Fee..... 00700-33  
11.5 Excluded Costs..... 00700-35

**ARTICLE 12 CHANGE OF CONTRACT TIME**

12.1 General..... 00700-36  
12.2 Extensions of Time for Delay Due to Weather ..... 00700-36

**ARTICLE 13 WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS;  
CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK**

13.1 Warranty and Guarantee ..... 00700-35  
13.2 Access to WORK..... 00700-35  
13.3 Tests and Inspections ..... 00700-35  
13.4 OWNER May Stop the WORK ..... 00700-36  
13.5 Correction or Removal of Defective WORK..... 00700-37  
13.6 One Year Correction Period..... 00700-37  
13.7 Acceptance of Defective WORK..... 00700-37

**ARTICLE 14 PAYMENTS TO CONTRACTOR AND COMPLETION**

14.1 Schedule of Values (Lump Sum Price Breakdown)..... 00700-37  
14.2 Unit Price Bid Schedule..... 00700-37  
14.3 Application for Progress Payment ..... 00700-38  
14.4 CONTRACTOR's Warranty of Title ..... 00700-38  
14.5 Review of Applications for Progress Payment ..... 00700-38  
14.6 Partial Utilization ..... 00700-39  
14.7 Substantial Completion ..... 00700-39  
14.8 Final Application for Payment..... 00700-40  
14.9 Final Payment and Acceptance ..... 00700-40  
14.10 Release of Retainage and Other Deductions ..... 00700-40  
14.11 CONTRACTOR's Continuing Obligation ..... 00700-41  
14.12 Final Payment Terminates Liability of OWNER ..... 00700-41

**ARTICLE 15 SUSPENSION OF WORK AND TERMINATION**

15.1 Suspension of WORK by OWNER ..... 00700-41  
15.2 Termination of Agreement by OWNER (CONTRACTOR Default)..... 00700-41  
15.3 Termination of Agreement by OWNER (For Convenience) ..... 00700-42  
15.4 Termination of Agreement by CONTRACTOR..... 00700-42

**ARTICLE 16 MISCELLANEOUS**

**SECTION 00700 - GENERAL CONDITIONS**

16.1 Giving Notice..... 00700-42  
16.2 Rights In and Use of Materials Found on the WORK ..... 00700-42  
16.3 Right to Audit ..... 00700-43  
16.4 Archaeological or Historical Discoveries ..... 00700-43  
16.5 Construction Over or Adjacent to Navigable Waters..... 00700-44  
16.6 Gratuity and Conflict of Interest ..... 00700-44  
16.7 Suits of Law Concerning the WORK..... 00700-44  
16.8 Certified Payrolls ..... 00700-44  
16.9 Prevailing Wage Rates ..... 00700-44  
16.10 Employment Reference ..... 00700-45  
16.11 Cost Reduction Incentive ..... 00700-45

## **SECTION 00700 - GENERAL CONDITIONS**

### **ARTICLE 1 DEFINITIONS**

Wherever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof. Where an entire word is capitalized in the definitions and is found not capitalized in the Contract Documents it has the ordinary dictionary definition.

Addenda - Written or graphic instruments issued prior to the opening of Bids which make additions, deletions, or revisions to the Contract Documents.

Agreement - The written contract between the OWNER and the CONTRACTOR covering the WORK to be performed; other documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment - The form furnished by the ENGINEER which is to be used by the CONTRACTOR to request progress or final payment and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

Asbestos - Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

Bid - The offer or proposal of the Bidder submitted on the prescribed form setting forth the price or prices for the WORK.

Bonds - Bid, Performance, and Payment Bonds and other instruments which protect against loss due to inability or refusal of the CONTRACTOR to perform its contract.

City and Borough of Wrangell Project Manager - The authorized representative of the City and Borough of Wrangell, as OWNER, who is responsible for administration of the contract.

Change Order - A document recommended by the ENGINEER, which is signed by the CONTRACTOR and the OWNER and authorizes an addition, deletion, or revision in the WORK, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

Contract Documents - The Table of Contents, Notice Inviting Bids, Instructions to Bidders, Bid Forms (including the Bid, Bid Schedule(s), Information Required of Bidder, Bid Bond, and all required certificates and affidavits), Agreement, Performance Bond, Payment Bond, General Conditions, Supplementary General Conditions, Technical Specifications, Drawings, Permits, and all Addenda, and Change Orders executed pursuant to the provisions of the Contract Documents.

Contract Price - The total monies payable by the OWNER to the CONTRACTOR under the terms and conditions of the Contract Documents.

Contract Time - The number of successive calendar days stated in the Contract Documents for the completion of the WORK.

CONTRACTOR - The individual, partnership, corporation, joint-venture or other legal entity with whom the OWNER has executed the Agreement.



## SECTION 00700 - GENERAL CONDITIONS

Day - A calendar day of 24 hours measured from midnight to the next midnight.

Defective WORK - WORK that is unsatisfactory, faulty, or deficient; or that does not conform to the Contract Documents; or that does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents; or WORK that has been damaged prior to the ENGINEER's recommendation of final payment.

Drawings - The Drawings, plans, maps, profiles, diagrams, and other graphic representations which indicate the character, location, nature, extent, and scope of the WORK and which have been prepared by the ENGINEER and are referred to in the Contract Documents. Shop Drawings are not within the meaning of this paragraph.

Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

Engineer of Record - The individual, partnership, corporation, joint-venture or other legal entity named as such in the Contract Documents.

ENGINEER - The ENGINEER is the firm or person(s) selected by the City and Borough of Wrangell to perform the duties of project inspection and management. The City and Borough of Wrangell will inform the CONTRACTOR of the identity of the ENGINEER at or before the Notice to Proceed.

Field Order - A written order issued by the ENGINEER which may or may not involve a change in the WORK.

General Requirements - Division 1 of the Technical Specifications.

Hazardous Waste - The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 9603) as amended from time to time.

Holidays - The City and Borough of Wrangell legal holidays occur on:

1. New Year's Day - January 1
2. Martin Luther King's Birthday - Third Monday in January
3. President's Day - Third Monday in February
4. Seward's Day - Last Monday in March
5. Memorial Day - Last Monday in May
6. Independence Day - July 4
7. Labor Day - First Monday in September
8. Alaska Day - October 18
9. Veteran's Day - November 11
10. Thanksgiving Day - Fourth Thursday and the following Friday in November
11. Christmas Day - December 25

If any holiday listed above falls on a Saturday, Saturday and the preceding Friday are both legal holidays. If the holiday should fall on a Sunday, Sunday and the following Monday are both legal holidays.

## **SECTION 00700 - GENERAL CONDITIONS**

Inspector - The authorized representative of the ENGINEER assigned to make detailed inspections for conformance to the Contract Documents. Any reference to the Resident Project Representative in this document shall mean the Inspector.

Laws and Regulations; Laws or Regulations - Any and all applicable laws, rules, regulations, ordinances, codes, and/or orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.

Mechanic's Lien - A form of security, an interest in real property, which is held to secure the payment of an obligation. When referred to in these Contract Documents, "Mechanic's Lien" or "lien" means "Stop Notice".

Milestone - A principal event specified in the Contract Documents relating to an intermediate completion date of a portion of the WORK, or a period of time within which the portion of the WORK should be performed prior to Substantial Completion of all the WORK.

Notice of Intent to Award - The written notice by the OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the requirements listed therein, within the time specified, the OWNER will enter into an Agreement.

Notice of Award - The written notice by the OWNER to the apparent successful bidder stating that the apparent successful bidder has complied with all conditions for award of the contract.

Notice of Completion - A form signed by the ENGINEER and the CONTRACTOR recommending to the OWNER that the WORK is Substantially Complete and fixing the date of Substantial Completion. After acceptance of the WORK by the OWNER's governing body, the form is signed by the OWNER and filed with the County Recorder. This filing starts the 30 day lien filing period on the WORK.

Notice to Proceed - The written notice issued by the OWNER to the CONTRACTOR authorizing the CONTRACTOR to proceed with the WORK and establishing the date of commencement of the Contract Time.

OWNER – The City and Borough of Wrangell, acting through its legally designated officials, officers, or employees.

Partial Utilization - Use by the OWNER or a substantially completed part of the WORK for the purpose for which it is intended prior to Substantial Completion of all the WORK.

PCB's - Polychlorinated biphenyls.

PERMITTEE – CONTRACTOR.

Petroleum - Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.

Project - The total construction of which the WORK to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

## **SECTION 00700 - GENERAL CONDITIONS**

Radioactive Material - Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

Shop Drawings - All Drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for the CONTRACTOR and submitted by the CONTRACTOR, to the ENGINEER, to illustrate some portion of WORK.

Specifications - (Same definition as for Technical Specifications hereinafter).

Stop Notice - A legal remedy for Subcontractors and suppliers who contribute to public works, but who are not paid for their WORK, which secures payment from construction funds possessed by the OWNER. For public property, the Stop Notice remedy is designed to substitute for mechanic's lien rights.

Sub-Consultant - The individual, partnership, corporation, joint-venture or other legal entity having a direct contract with ENGINEER, or with any of its Consultants to furnish services with respect to the Project.

Subcontractor - An individual, partnership, corporation, joint-venture or other legal entity having a direct contract with the CONTRACTOR, or with any of its Subcontractors, for the performance of a part of the WORK at the site.

Substantial Completion - Refers to when the WORK has progressed to the point where, in the opinion of the ENGINEER as evidenced by Notice of Completion as applicable, it is sufficiently complete, in accordance with the Contract Documents, so that the WORK can be utilized for the purposes for which it is intended; or if no such notice is issued, when final payment is due in accordance with Paragraph 14.8. The terms "substantially complete" and "substantially completed" as applied to any WORK refer to substantial completion thereof.

Supplementary General Conditions (SGC) - The part of the Contract Documents which make additions, deletions, or revisions to these General Conditions.

Supplier - A manufacturer, fabricator, supplier, distributor, materialman, or vendor.

Technical Specifications - Divisions 1 through 16 of the Contract Documents consisting of the General Requirements and written technical descriptions of products and execution of the WORK.

Underground Utilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: water, sewage and drainage removal, electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, traffic, or other control systems.

WORK - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. WORK is the result of performing, or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

## SECTION 00700 - GENERAL CONDITIONS

### ARTICLE 2 PRELIMINARY MATTERS

- 2.1 DELIVERY OF BONDS/INSURANCE CERTIFICATES. When the CONTRACTOR delivers the signed Agreements to the OWNER, the CONTRACTOR shall also deliver to the OWNER such Bonds and Insurance Policies and Certificates as the CONTRACTOR may be required to furnish in accordance with the Contract Documents.
- 2.2 COPIES OF DOCUMENTS. The OWNER shall furnish to the CONTRACTOR the required number of copies of the Contract Documents specified in the Supplementary General Conditions.
- 2.3 COMMENCEMENT OF CONTRACT TIME; NOTICE TO PROCEED. The Contract Time will start to run on the commencement date stated in the Notice to Proceed.
- 2.4 STARTING THE WORK
- A. The CONTRACTOR shall begin to perform the WORK within 10 days after the commencement date stated in the Notice to Proceed, but no WORK shall be done at the site prior to said commencement date.
  - B. Before undertaking each part of the WORK, the CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. The CONTRACTOR shall promptly report in writing to the ENGINEER any conflict, error, or discrepancy which the CONTRACTOR may discover and shall obtain a written interpretation or clarification from the ENGINEER before proceeding with any WORK affected thereby.
  - C. The CONTRACTOR shall submit to the ENGINEER for review those documents called for under Section 01300 - CONTRACTOR Submittals in the General Requirements.
- 2.5 PRE-CONSTRUCTION CONFERENCE. The CONTRACTOR is required to attend a Pre-Construction Conference. This conference will be attended by the ENGINEER and others as appropriate in order to discuss the WORK in accordance with the applicable procedures specified in the General Requirements, Section 01010 - Summary of WORK in the General Requirements.

### ARTICLE 3 CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

- 3.1 INTENT
- A. The Contract Documents comprise the entire Agreement between the OWNER and the CONTRACTOR concerning the WORK. The Contract Documents shall be construed as a whole in accordance with Alaska Law.
  - B. It is the intent of the Contract Documents to describe the WORK, functionally complete, to be constructed in accordance with the Contract Documents. Any work, materials, or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for. When words or phrases which have a well-known technical or construction industry or trade meaning are used to describe work, materials, or equipment such words or phrases shall be

## SECTION 00700 - GENERAL CONDITIONS

interpreted in accordance with that meaning, unless a definition has been provided in Article 1 of the General Conditions. Reference to standard specifications, manuals, or codes of any technical society, organization, or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual, or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the OWNER, the CONTRACTOR, or the ENGINEER or any of their consultants, agents, or employees from those set forth in the Contract Documents.

- C. If, during the performance of the WORK, CONTRACTOR discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the WORK or of any such standard, specification, manual or code or of any instruction of any Supplier referred to in paragraph 6.5, the CONTRACTOR shall report it to the ENGINEER in writing at once, and the CONTRACTOR shall not proceed with the WORK affected thereby (except in an emergency as authorized by the ENGINEER) until a clarification field order, or Change Order to the Contract Documents has been issued.

### 3.2 ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS

- A. In resolving conflicts resulting from, errors, or discrepancies in any of the Contract Documents, the order of precedence shall be as follows:
  - 1. Permits from other agencies as may be required by law, excepting the definition of "PERMITEE" in these permits.
  - 2. Field Orders
  - 3. Change Orders
  - 4. ENGINEER's written interpretations and clarifications.
  - 5. Agreement
  - 6. Addenda
  - 7. CONTRACTOR's Bid (Bid Form)
  - 8. Notice Inviting Bids
  - 9. Instructions to Bidders
  - 10. General Conditions
  - 11. Technical Specifications
  - 12. Drawings
- B. With reference to the Drawings the order of precedence is as follows:
  - 1. Figures govern over scaled dimensions
  - 2. Detail Drawings govern over general Drawings
  - 3. Addenda/ Change Order drawings govern over Contract Drawings
  - 4. Contract Drawings govern over standard drawings

- 3.3 AMENDING AND SUPPLEMENTING CONTRACT DOCUMENTS. The Contract Documents may be amended to provide for additions, deletions, and revisions in the WORK or to modify the terms and conditions thereof by a Change Order (pursuant to Article 10 CHANGES IN THE WORK).

## SECTION 00700 - GENERAL CONDITIONS

- 3.4 REUSE OF DOCUMENTS. Neither the CONTRACTOR, nor any Subcontractor or Supplier, nor any other person or organization performing any of the WORK under a contract with the OWNER shall have or acquire any title to or ownership rights in any of the Drawings, Technical Specifications, or other documents used on the WORK, and they shall not reuse any of them on the extensions of the Project or any other project without written consent of the OWNER.

### ARTICLE 4 AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

- 4.1 AVAILABILITY OF LANDS. The OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the WORK is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of the CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by the OWNER, unless otherwise provided in the Contract Documents. Nothing contained in the Contract Documents shall be interpreted as giving the CONTRACTOR exclusive occupancy of the lands or rights-of-way provided. The CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment; provided, that the CONTRACTOR shall not enter upon nor use any property not under the control of the OWNER until a written temporary construction easement, lease or other appropriate agreement has been executed by the CONTRACTOR and the property owner, and a copy of said agreement furnished to the ENGINEER prior to said use; and, neither the OWNER nor the ENGINEER shall be liable for any claims or damages resulting from the CONTRACTOR's unauthorized trespass or use of any such properties.
- 4.2 PHYSICAL CONDITIONS - SUBSURFACE AND EXISTING STRUCTURES
- A. Explorations and Reports. Reference is made to SGC 4.2 Physical Conditions of the Supplementary General Conditions for identification of those reports of explorations and tests of sub-surface conditions at the site that have been utilized by the ENGINEER in the preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the technical data contained in such reports, however, reports are not to be considered complete or comprehensive and nontechnical data, interpretations, and opinions contained in such reports are not to be relied on by the CONTRACTOR. The CONTRACTOR is responsible for any further explorations or tests that may be necessary and any interpretation, interpolation, or extrapolation that it makes of any information shown in such reports.
- B. Existing Structures. Reference is made to SGC 4.2 Physical Conditions of the Supplementary General Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Utilities referred to in Paragraph 4.4 herein) which are at or contiguous to the site that have been utilized by the ENGINEER in the preparation of the Contract Documents. The CONTRACTOR may rely upon the accuracy of the technical data contained in such drawings, however, nontechnical data, interpretations, and opinions contained in such drawings are not to be relied on by the CONTRACTOR. The CONTRACTOR is also responsible for any interpretation, interpolation, or extrapolation that it makes of any information shown in such drawings.

## SECTION 00700 - GENERAL CONDITIONS

### 4.3 DIFFERING SITE CONDITIONS

- A. The CONTRACTOR shall promptly upon discovery (but in no event later than 14 days thereafter) and before the following conditions are disturbed, notify the ENGINEER, in writing of any:
1. Material that the CONTRACTOR believes may be material that is hazardous waste, as defined in Article 1 of these General Conditions, or asbestos, PCB's, petroleum or any other substance or material posing a threat to human or to the environment.
  2. Subsurface or latent physical conditions at the site differing from those indicated.
  3. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the contract.
- B. The OWNER shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the CONTRACTOR's cost of, or the time required for, performance of any part of the WORK shall issue a Change Order under the procedures described in the contract.
- C. In the event that a dispute arises between the OWNER and the CONTRACTOR whether the conditions materially differ, or involved hazardous waste or other materials listed above, or cause a decrease or increase in the CONTRACTOR's cost of, or time required for, performance of any part of the WORK, the CONTRACTOR shall not be excused from any scheduled completion date provided for by the contract, but shall proceed with all WORK to be performed under the contract. The CONTRACTOR shall retain any and all rights provided either by contract or by Law which pertain to the resolution of disputes and protests between the contracting parties.

### 4.4 PHYSICAL CONDITIONS - UNDERGROUND UTILITIES

- A. Indicated. The information and data indicated in the Contract Documents with respect to existing Underground Utilities at or contiguous to the site are based on information and data furnished to the OWNER or the ENGINEER by the owners of such Underground Utilities or by others. Unless it is expressly provided in the Supplementary General Conditions and/or Section 01530 - Protection and Restoration of Existing Facilities of the General Requirements, the OWNER and the ENGINEER shall not be responsible for the accuracy or completeness of any such information or data, and the CONTRACTOR shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Utilities indicated in the Contract Documents, for coordination of the WORK with the owners of such Underground Utilities during construction, for the safety and protection thereof and repairing any damage thereto resulting from the WORK, the cost of which will be considered as having been included in the Contract Price.
- B. Not Indicated. If an Underground Utility is uncovered or revealed at or contiguous to the site which was not indicated in the Contract Documents and which the CONTRACTOR could not reasonably have been expected to be aware of, the CONTRACTOR shall identify the owner of such Underground Utility and give written notice thereof to that owner and shall notify the ENGINEER in accordance with the requirements of the Supplementary General

## SECTION 00700 - GENERAL CONDITIONS

Conditions and Section 01530 - Protection and Restoration of Existing Facilities of the General Requirements.

### 4.5 REFERENCE POINTS

- A. The ENGINEER will provide one bench mark, near or on the site of the WORK, and will provide two points near or on the site to establish a base line for use by the CONTRACTOR for alignment control. Unless otherwise specified in the General Requirements, the CONTRACTOR shall furnish all other lines, grades, and bench marks required for proper execution of the WORK.
- B. The CONTRACTOR shall preserve all bench marks, stakes, and other survey marks, and in case of their removal or destruction by its own employees or by its Subcontractor's employees, the CONTRACTOR shall be responsible for the accurate replacement of such reference points by personnel qualified under the Alaska Statute governing the licensing of Architects, Engineers, and Land Surveyors.

## ARTICLE 5 BONDS AND INSURANCE

### 5.1 PERFORMANCE, PAYMENT, AND OTHER BONDS

- A. The CONTRACTOR shall furnish, when required, Performance and Payment Bonds on forms provided by the City and Borough of Wrangell for the penal sums of 100% of the amount of the Bid award. The surety on each bond may be any corporation or partnership authorized to do business in the State of Alaska as an insurer under AS 21.09. These bonds shall remain in effect for 12 months after the date of final payment and until all obligations and liens under this contract have been satisfied. The CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary General Conditions. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.
- B. If the surety on any Bond furnished by the CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the WORK is located, the CONTRACTOR shall within 7 days thereafter substitute another Bond and Surety, which must be acceptable to the OWNER.
- C. All Bonds required by the Contract Documents to be purchased and maintained by CONTRACTOR shall be obtained from surety companies that are duly licensed or authorized in the State of Alaska to issue Bonds for the limits so required. Such surety companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions. The City Engineer may, on behalf of the OWNER, notify the surety of any potential default or liability.



## SECTION 00700 - GENERAL CONDITIONS

### 5.2 INSURANCE

- A. The CONTRACTOR shall purchase and maintain the insurance required under this paragraph. Such insurance shall include the specific coverages set out herein and be written for not less than the limits of liability and coverages provided in the Supplementary General Conditions, or required by law, whichever are greater. All insurance shall be maintained continuously during the life of the Agreement up to the date of Final Completion and at all times thereafter when the CONTRACTOR may be correcting, removing, or replacing Defective WORK in accordance with Paragraph 13.6, but the CONTRACTOR's liabilities under this Agreement shall not be deemed limited in any way to the insurance coverage required.
- B. All insurance required by the Contract Documents to be purchased and maintained by the CONTRACTOR shall be obtained from insurance companies that are duly licensed or authorized in the State of Alaska to issue insurance policies for the limits and coverages so required. Such insurance companies shall have a current Best's Rating of at least an "A-Minus" general policy holder's rating and a Class IV financial size category and shall also meet such additional requirements and qualifications as may be provided in the Supplementary General Conditions.
- C. The CONTRACTOR shall furnish the OWNER with certificates showing the type, amount, class of operations covered, effective dates and dates of expiration of policies. All of the policies of insurance so required to be purchased and maintained (or the certificates or other evidence thereof) shall contain a provision or endorsement that the coverage afforded will not be cancelled, reduced in coverage, or renewal refused until at least 30 days' prior written notice has been given to the OWNER by certified mail. All such insurance required herein (except for Workers' Compensation and Employer's Liability) shall name the OWNER, its Consultants and subconsultants and their officers, directors, agents, and employees as "additional insureds" under the policies. The CONTRACTOR shall purchase and maintain the following insurance:
1. Workers' Compensation and Employer's Liability. This insurance shall protect the CONTRACTOR against all claims under applicable state workers' compensation laws. The CONTRACTOR shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of a Workers' Compensation law. This policy shall include an "all states" endorsement. The CONTRACTOR shall require each Subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees to be engaged in such WORK unless such employees are covered by the protection afforded by the CONTRACTOR's Workers' Compensation Insurance. In case any class of employees is not protected, under the Workers' Compensation Statute, the CONTRACTOR shall provide and shall cause each Subcontractor to provide adequate employer's liability insurance for the protection of such of its employees as are not otherwise protected.
  2. Commercial General Liability. This insurance shall be written in comprehensive form and shall protect the CONTRACTOR against all claims arising from injuries to persons other than its employees or damage to property of the OWNER or others arising out of any act or omission of the CONTRACTOR or its agents, employees, or

## SECTION 00700 - GENERAL CONDITIONS

Subcontractors. The policy shall contain no exclusions for any operations within the scope of this contract.

3. Comprehensive Automobile Liability. This insurance shall be written in comprehensive form and shall protect the CONTRACTOR against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, and shall cover operation on or off the site of all motor vehicles licensed for highway use, whether they are owned, non-owned, or hired. Coverage for hired motor vehicles should include endorsement covering liability assumed under this Agreement.
4. Subcontractor's Commercial General Liability Insurance and Commercial Automobile Liability Insurance. The CONTRACTOR shall either require each of its Subcontractors to procure and to maintain Subcontractor's Commercial General Liability and Property Damage Insurance and Vehicle Liability Insurance of the type and in the amounts specified in the Supplementary General Conditions or insure the activities of its Subcontractors in the CONTRACTOR's own policy, in like amount.
5. Builder's Risk. This insurance shall be of the "all risks" type, shall be written in completed value form, and shall protect the CONTRACTOR, the OWNER, and the ENGINEER, against risks of damage to buildings, structures, and materials and equipment. The amount of such insurance shall be not less than the insurable value of the WORK at completion. Builder's risk insurance shall provide for losses to be payable to the CONTRACTOR and the OWNER, as their interests may appear. The policy shall contain a provision that in the event of payment for any loss under the coverage provided, the insurance company shall have no rights of recovery against the CONTRACTOR, the OWNER, and the ENGINEER. The Builder's Risk policy shall insure against all risks of direct physical loss or damage to property from any external cause including flood and earthquake. Allowable exclusions, if any, shall be as specified in the Supplementary General Conditions.

### ARTICLE 6 CONTRACTOR'S RESPONSIBILITIES

#### 6.1 SUPERVISION AND SUPERINTENDENCE

- A. The CONTRACTOR shall supervise, inspect, and direct the WORK competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the WORK in accordance with the Contract Documents. The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incidental thereto. The CONTRACTOR shall be responsible to see that the completed WORK complies accurately with the Contract Documents.
- B. The CONTRACTOR shall designate in writing and keep on the WORK site at all times during its progress a technically qualified, English-speaking superintendent, who is an employee of the CONTRACTOR and who shall not be replaced without written notice to the OWNER and the ENGINEER. The superintendent will be the CONTRACTOR's representative at the site and shall have authority to act on behalf of the CONTRACTOR. All communications given to the superintendent shall be as binding as if given to the CONTRACTOR. The CONTRACTOR shall issue all its communications to the OWNER through the ENGINEER and the ENGINEER only.

## SECTION 00700 - GENERAL CONDITIONS

- C. The CONTRACTOR's superintendent shall be present at the site of the WORK at all times while WORK is in progress. Failure to observe this requirement shall be considered suspension of the WORK by the CONTRACTOR until such time as such superintendent is again present at the site.

### 6.2 LABOR, MATERIALS, AND EQUIPMENT

- A. The CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the WORK and perform construction as required by the Contract Documents. The CONTRACTOR shall furnish, erect, maintain, and remove the construction plant and any temporary works as may be required. The CONTRACTOR shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the WORK or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, there shall be no restriction on the hours during which work may occur.
- B. Except as otherwise provided in this Paragraph, the CONTRACTOR shall receive no additional compensation for overtime work, i.e., work in excess of 8 hours in any one calendar day or 40 hours in any one calendar week, even though such overtime work may be required under emergency conditions and may be ordered by the ENGINEER in writing. Additional compensation will be paid the CONTRACTOR for overtime work only in the event extra work is ordered by the ENGINEER and the Change Order specifically authorizes the use of overtime work and then only to such extent as overtime wages are regularly being paid by the CONTRACTOR for overtime work of a similar nature in the same locality.
- C. All costs of inspection and testing performed during overtime work by the CONTRACTOR which is allowed solely for the convenience of the CONTRACTOR shall be borne by the CONTRACTOR. The OWNER shall have the authority to deduct the cost of all such inspection and testing from any partial payments otherwise due to the CONTRACTOR.
- D. Unless otherwise specified in the Contract Documents, the CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up, and completion of the WORK.
- E. All materials and equipment to be incorporated into the WORK shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of the OWNER. If required by the ENGINEER, the CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provisions of any such instructions will be effective to assign to the ENGINEER, or any of the ENGINEER consultants, agents, or employees, any duty or authority to supervise or direct the furnishing or performance of the WORK or any duty or authority to undertake responsibility contrary to the provisions of Paragraphs 9.9C and 9.9D.

## SECTION 00700 - GENERAL CONDITIONS

- F. The CONTRACTOR shall at all times employ sufficient labor and equipment for prosecuting the several classes of WORK to full completion in the manner and time set forth in and required by these specifications. All workers shall have sufficient skill and experience to perform properly the WORK assigned to them. Workers engaged in special WORK, or skilled WORK, shall have sufficient experience in such WORK and in the operation of the equipment required to perform all WORK, properly and satisfactorily.
- G. Any person employed by the CONTRACTOR or by any Subcontractor who, in the opinion of the ENGINEER, does not perform the WORK in a proper and skillful manner, or is intemperate or disorderly shall, at the written request of the ENGINEER, be removed forthwith by the CONTRACTOR or Subcontractor employing such person, and shall not be employed again in any portion of the WORK without the approval of the ENGINEER. Should the CONTRACTOR fail to remove such person or persons as required above, or fail to furnish suitable and sufficient personnel for the proper prosecution of the WORK, the ENGINEER may suspend the WORK by written notice until such orders are complied with.
- 6.3 ADJUSTING PROGRESS SCHEDULE. The CONTRACTOR shall submit monthly updates of the progress schedule to the ENGINEER for acceptance in accordance with the provisions in Section 01300 - CONTRACTOR Submittals in the General Requirements.
- 6.4 SUBSTITUTES OR "OR-EQUAL" ITEMS. The CONTRACTOR shall submit proposed substitutes or "or-equal" items in accordance with the provisions in Section 01300 - CONTRACTOR Submittals in the General Requirements.
- 6.5 CONCERNING SUBCONTRACTORS, SUPPLIERS, AND OTHERS.
- A. The CONTRACTOR shall be responsible to the OWNER and the ENGINEER for the acts and omissions of its Subcontractors and their employees to the same extent as CONTRACTOR is responsible for the acts and omissions of its own employees. Nothing contained in this Paragraph shall create any contractual relationship between any Subcontractor and the OWNER or the ENGINEER nor relieve the CONTRACTOR of any liability or obligation under the prime contract.
- B. The CONTRACTOR shall perform not less than 40% of the WORK with its own forces (i.e., without subcontracting). The 40% requirement shall be understood to mean that the CONTRACTOR shall perform, with its own organization, WORK amounting to at least 40% of the awarded contract amount. The 40% requirement will be calculated based upon the total of the subcontract amounts submitted for contract award, and any other information requested by the OWNER from the apparent low bidder.
- 6.6 PERMITS
- A. Unless otherwise provided in the Supplementary General Conditions, the CONTRACTOR shall obtain and pay for all construction permits and licenses from the agencies having jurisdiction, including the furnishing of insurance and bonds if required by such agencies. The enforcement of such requirements under this contract shall not be made the basis for claims for additional compensation. The OWNER shall assist the CONTRACTOR, when necessary, in obtaining such permits and licenses. The CONTRACTOR shall pay all

## SECTION 00700 - GENERAL CONDITIONS

governmental charges and inspection fees necessary for the prosecution of the WORK, which are applicable at the time of opening of Bids. The CONTRACTOR shall pay all charges of utility owners for connections to the WORK.

- B. These Contract Documents may require that the WORK be performed within the conditions and/or requirements of local, state and/or federal permits. These permits may be bound within the Contract Documents, included within the Contract Documents by reference, or included as part of the WORK, as designated in this Section. The CONTRACTOR is responsible for completing the WORK required for compliance with all permit requirements; this WORK is incidental to other items in the Contract Documents. Any reference to the "permittee" in the permits shall mean the CONTRACTOR. If any permits were acquired by the OWNER, this action was done to expedite the start of construction. If the CONTRACTOR does not complete the WORK within the specified permit window, the CONTRACTOR shall be responsible for the permit extension, and for completing any additional requirements placed upon the permit.
- C. These Contract Documents may require that the WORK be performed within the conditions and/or requirements of local, state and/or federal permits. These permits may be bound within the Contract Documents, included within the Contract Documents by reference, or included as part of the WORK, as designated in Section 00700, Article 6.6 - PERMITS. The CONTRACTOR is responsible for completing the WORK required for compliance with all permit requirements; this WORK is incidental to other items in the Contract Documents. Any reference to the "permittee" in the permits shall mean the CONTRACTOR. If any permits were acquired by the OWNER, this action was done to expedite the start of construction. If the CONTRACTOR does not complete the WORK within the specified permit window, the CONTRACTOR shall be responsible for the permit extension, and for completing any additional requirements placed upon the permit.
- D. The OWNER shall apply for, and obtain, the necessary building permit for this project, however, the CONTRACTOR is responsible for scheduling and coordinating all necessary inspections. The City and Borough of Wrangell Inspection number is 874-3904. All other provisions of this Section remain in effect.
- 6.7 **PATENT FEES AND ROYALTIES.** The CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the WORK or the incorporation in the WORK of any invention, design, process, product, software or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the WORK and if to the actual knowledge of the OWNER or the ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by the OWNER in the Contract Documents. The CONTRACTOR shall indemnify, defend and hold harmless the OWNER and the ENGINEER and anyone directly or indirectly employed by either of them from and against all claims, damages, losses, and expenses (including attorneys' fees and court costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the WORK or resulting from the incorporation in the WORK of any invention, design, process, product, or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.
- 6.8 **LAWS AND REGULATIONS.** The CONTRACTOR shall observe and comply with all federal, state, and local laws, ordinances, codes, orders, and regulations which in any manner affect those

## SECTION 00700 - GENERAL CONDITIONS

engaged or employed on the WORK, the materials used in the WORK, or the conduct of the WORK. If any discrepancy or inconsistency should be discovered in this contract in relation to any such law, ordinance, code, order, or regulation, the CONTRACTOR shall report the same in writing to the ENGINEER. The CONTRACTOR shall indemnify, defend, and hold harmless the OWNER, the ENGINEER, and their officers, agents, and employees against all claims or liability arising from violation of any such law, ordinance, code, order, or regulation, whether by CONTRACTOR or by its employees, Subcontractors, or third parties. Any particular law or regulation specified or referred to elsewhere in the Contract Documents shall not in any way limit the obligation of the CONTRACTOR to comply with all other provisions of federal, state, and local laws and regulations.

The OWNER may, per AS 36.30, audit the CONTRACTOR's or Subcontractor(s) records that are related to the cost or pricing data for this contract, all related Change Orders, and/or contract modifications.

- 6.9 TAXES. The CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by the CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the WORK.
- 6.10 USE OF PREMISES. The CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to (1) the Project site, (2) the land and areas identified in and permitted by the Contract Documents, and (3) the other land and areas permitted by Laws and Regulations, rights-of-way, permits, leases and easements. The CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the WORK. Should any claim be made against the OWNER or the ENGINEER by any such owner or occupant because of the performance of the WORK, the CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim through litigation. The CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify, defend, and hold the OWNER and the ENGINEER harmless from and against all claims, damages, losses, and expenses (including, but not limited to, fees of engineers attorneys, and other professionals and court costs) arising directly, indirectly, or consequentially out of any action, legal or equitable, brought by any such owner or occupant against the OWNER, the ENGINEER, their Consultants, Sub-consultants, and the officers, directors, employees and agents of each and any of them to the extent caused by or based upon the CONTRACTOR's performance of the WORK.
- 6.11 SAFETY AND PROTECTION
- A. The CONTRACTOR shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the WORK. The CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
1. all employees on the WORK and other persons and organizations who may be affected thereby;
  2. all the WORK and materials and equipment to be incorporated therein, whether in storage on or off the site; and
  3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

## SECTION 00700 - GENERAL CONDITIONS

- B. The CONTRACTOR shall comply with all applicable Laws and Regulations whether referred to herein or not) of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss and shall erect and maintain all necessary safeguards for such safety and protection. The CONTRACTOR shall notify owners of adjacent property and utilities when prosecution of the WORK may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. The CONTRACTOR shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and program.
- D. Materials that contain hazardous substances or mixtures may be required on the WORK. A Material Safety Data Sheet shall be requested by the CONTRACTOR from the manufacturer of any hazardous product used.
- E. Material usage shall be accomplished with strict adherence to all safety requirements and all manufacturer's warnings and application instructions listed on the Material Safety Data Sheet and on the product container label.
- F. The CONTRACTOR shall be responsible for coordinating communications on any exchange of Material Safety Data Sheets or other hazardous material information that is required to be made available to, or exchanged between, or among, employers at the site in accordance with Laws or Regulations.
- G. The CONTRACTOR shall notify the ENGINEER if it considers a specified product or its intended usage to be unsafe. This notification must be given to the ENGINEER prior to the product being ordered, or if provided by some other party, prior to the product being incorporated in the WORK.

### 6.12 SHOP DRAWINGS AND SAMPLES

- A. After checking and verifying all field measurements and after complying with applicable procedures specified in the General Requirements, the CONTRACTOR shall submit to the ENGINEER for review, all Shop Drawings in accordance with Section 01300 - CONTRACTOR Submittals in the General Requirements.
- B. The CONTRACTOR shall also submit to the ENGINEER for review all samples in accordance with Section 01300 - CONTRACTOR Submittals in the General Requirements.
- C. Before submittal of each shop drawing or sample, the CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the WORK and the Contract Documents.

6.13 CONTINUING THE WORK. The CONTRACTOR shall carry on the WORK and adhere to the progress schedule during all disputes or disagreements with the OWNER. No work shall be delayed

## SECTION 00700 - GENERAL CONDITIONS

or postponed pending resolution of any disputes or disagreements, except as the CONTRACTOR and the OWNER may otherwise agree in writing.

### 6.14 INDEMNIFICATION

A. To the fullest extent permitted by Laws and Regulations, the CONTRACTOR shall indemnify, defend, and hold harmless the OWNER, the ENGINEER, their Consultants, Sub-consultants and the officers, directors, employees, and agents of each and any of them, against and from all claims and liability arising under, by reason of or incidentally to the contract or any performance of the WORK, but not from the sole negligence or willful misconduct of the OWNER, and the ENGINEER. Such indemnification by the CONTRACTOR shall include but not be limited to the following:

1. Liability or claims resulting directly or indirectly from the negligence or carelessness of the CONTRACTOR, its employees, or agents in the performance of the WORK, or in guarding or maintaining the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission of the CONTRACTOR, its employees, agents, or third parties;
2. Liability or claims arising directly or indirectly from bodily injury, occupational sickness or disease, or death of the CONTRACTOR's or Subcontractor's own employees engaged in the WORK resulting in actions brought by or on behalf of such employees against the OWNER, and the ENGINEER;
3. Liability or claims arising directly or indirectly from or based on the violation of any law, ordinance, regulation, order, or decree, whether by the CONTRACTOR, its employees, or agents;
4. Liability or claims arising directly or indirectly from the use or manufacture by the CONTRACTOR, its employees, or agents in the performance of this contract of any copyrighted or non-copyrighted composition, secret process, patented or non-patented invention, computer software, article, or appliance, unless otherwise specifically stipulated in this contract.
5. Liability or claims arising directly or indirectly from the breach of any warranties, whether express or implied, made to the OWNER or any other parties by the CONTRACTOR, its employees, or agents;
6. Liabilities or claims arising directly or indirectly from the willful or criminal misconduct of the CONTRACTOR, its employees, or agents; and,
7. Liabilities or claims arising directly or indirectly from any breach of the obligations assumed herein by the CONTRACTOR.

B. The CONTRACTOR shall reimburse the ENGINEER and the OWNER for all costs and expenses, (including but not limited to fees and charges of engineers, attorneys, and other professionals and court costs including all costs of appeals) incurred by said OWNER, and the ENGINEER in enforcing the provisions of this Paragraph 6.14.

C. The indemnification obligation under this Paragraph 6.14 shall not be limited in any way by any limitation of the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR or any such Subcontractor or other person or organization under workers' compensation acts, disability benefit acts, or other employee benefit acts.

6.15 CONTRACTOR'S DAILY REPORTS. The CONTRACTOR shall complete a daily report indicating total manpower for each construction trade, major equipment on site, each Subcontractor's



## SECTION 00700 - GENERAL CONDITIONS

manpower, weather conditions, etc., involved in the performance of the WORK. The daily report shall be completed on forms provided by the ENGINEER and shall be submitted to the ENGINEER at the conclusion of each work day. The report should comment on the daily progress, shall document any change of conditions encountered on-site, and status of the WORK within each major component of the WORK. These components will be decided by the ENGINEER.

- 6.16 ASSIGNMENT OF CONTRACT. The CONTRACTOR shall not assign, sublet, sell, transfer, or otherwise dispose of the contract or any portion thereof, or its right, title, or interest therein, or obligations thereunder, without the written consent of the OWNER except as imposed by law. If the CONTRACTOR violates this provision, the contract may be terminated at the option of the OWNER. In such event, the OWNER shall be relieved of all liability and obligations to the CONTRACTOR and to its assignee or transferee, growing out of such termination.
- 6.17 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES. It is understood that any turn-on or turn-off, line locates and any other work or assistance necessary by the Wrangell Water Utilities Division, will be at the CONTRACTOR's expense unless otherwise stated in the bid documents. All cost must be agreed to prior to any related actions, and will be considered incidental to the project cost. Billing to the CONTRACTOR will be direct from the Wrangell Water Utilities Division.
- 6.18 OPERATING WATER SYSTEM VALVES
- A. The CONTRACTOR shall submit a written request, to the ENGINEER, for approval to operate any valve on any in-service section of the City and Borough of Wrangell water system. The request must be submitted at least 24-hours prior to operating any valves. The Wrangell Water Utilities Division reserves the right to approve or deny the request. The request shall specifically identify each valve to be operated, the time of operation, and the operation to be performed. The CONTRACTOR shall obtain the written approval of the ENGINEER for any scheduled operation before operating any valve.
- B. The CONTRACTOR shall be responsible for all damages, both direct and consequential, to the City or any other party, caused by unauthorized operation of any valve of the City and Borough of Wrangell water system.
- 6.19 CONTRACTOR'S WORK SCHEDULE LIMITATIONS. It is unlawful to operate any sand blaster, pile driver, power shovel, pneumatic hammer, derrick, power hoist, or similar heavy construction equipment before 7:00 am or after 10:00 pm, Monday through Friday, or before 9:00 am or after 8:00 pm, Saturday and Sunday, in excess of 60 decibels at the project limits, unless a permit shall first be obtained from the Wrangell Building Official. Such permit shall be issued by the Official only upon a determination that such operation during hours not otherwise permitted hereunder is necessary and will not result in unreasonable disturbance to surrounding residents and businesses.

## ARTICLE 7 OTHER WORK

### 7.1 RELATED WORK AT SITE

- A. The OWNER may perform other work related to the Project at the site by the OWNER's own forces, have other work performed by utility owners, or let other direct contracts therefor which may contain General Conditions similar to these. If the fact that such other work is to

## SECTION 00700 - GENERAL CONDITIONS

be performed was not noted in the Contract Documents, written notice thereof will be given to the CONTRACTOR prior to starting any such other work.

- B. The CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (or the OWNER, if the OWNER is performing the additional work with the OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the WORK with theirs. The CONTRACTOR shall do all cutting, fitting, and patching of the WORK that may be required to make its several parts come together properly and integrate with such other work. The CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of the ENGINEER and the others whose work will be affected.
- C. If the proper execution or results of any part of the CONTRACTOR's WORK depends upon the work of any such other contractor or utility owner (or OWNER), the CONTRACTOR shall inspect and report to the ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for such proper execution and results. The CONTRACTOR's failure to report such delays, defects, or deficiencies will constitute an acceptance of the other work as fit and proper for integration with the CONTRACTOR's WORK except for latent or nonapparent defects and deficiencies in the other work.

7.2 COORDINATION. If the OWNER contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Supplementary General Conditions, and the specific matters to be covered by such authority and responsibility will be itemized and the extent of such authority and responsibilities will be provided in the Supplementary General Conditions.

### ARTICLE 8 OWNER'S RESPONSIBILITIES

#### 8.1 COMMUNICATIONS

- A. The OWNER shall issue all its communications to the CONTRACTOR through the ENGINEER.
- B. The CONTRACTOR shall issue all its communications to the OWNER through the ENGINEER.

8.2 PAYMENTS. The OWNER shall make payments to the CONTRACTOR as provided in Paragraphs 14.5, 14.8, 14.9 and 14.10.

8.3 LANDS, EASEMENTS, AND SURVEYS. The OWNER's duties in respect of providing lands and easements and providing surveys to establish reference points are set forth in Paragraphs 4.1 and 4.5.

8.4 CHANGE ORDERS. The OWNER shall execute Change Orders as indicated in Paragraph 10.1F.

8.5 INSPECTIONS AND TESTS. The OWNER's responsibility in respect of inspections, tests, and approvals is set forth in Paragraph 13.3.

## SECTION 00700 - GENERAL CONDITIONS

- 8.6 SUSPENSION OF WORK. In connection with the OWNER's right to stop WORK or suspend WORK, see Paragraphs 13.4 and 15.1.
- 8.7 TERMINATION OF AGREEMENT. Paragraphs 15.2 and 15.3 deal with the OWNER's right to terminate services of the CONTRACTOR.

### ARTICLE 9 ENGINEER'S STATUS DURING CONSTRUCTION

- 9.1 OWNER'S REPRESENTATIVE. The ENGINEER will be the OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of the ENGINEER as the OWNER's representative during construction are set forth in the Contract Documents.
- 9.2 VISITS TO SITE. The ENGINEER will make visits to the site during construction to observe the progress and quality of the WORK and to determine, in general, if the WORK is proceeding in accordance with the Contract Documents. Exhaustive or continuous on-site inspections to check the quality or quantity of the WORK will not be required of the ENGINEER. The ENGINEER will not, during such visits, or as a result of such observations of the CONTRACTOR's WORK in progress, supervise, direct, or have control over the CONTRACTOR's WORK.
- 9.3 PROJECT REPRESENTATION. The ENGINEER may furnish an Inspector to assist in observing the performance of the WORK. The duties, responsibilities, and limitations of authority are as follows:

A. Duties, Responsibilities and Limitations of Authority of Inspector

General. The Inspector, who is the ENGINEER's Agent, will act as directed by and under the supervision of the ENGINEER and will confer with the ENGINEER regarding its actions. The Inspector's dealings in matters pertaining to the on-site WORK shall, in general, be only with the ENGINEER and the CONTRACTOR, and dealings with Subcontractors shall only be through or with the full knowledge of the CONTRACTOR. Written communication with the OWNER will be only through or as directed by the ENGINEER.

Duties and Responsibilities. The Inspector will:

1. Review the progress schedule, list of Shop Drawing submittals and schedule of values prepared by the CONTRACTOR and consult with the ENGINEER concerning their acceptability.
2. Attend pre-construction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with the ENGINEER and notify those expected to attend in advance. Attend meetings and maintain and circulate copies of minutes thereof.
3. Serve as the ENGINEER's liaison with the CONTRACTOR, working principally through the CONTRACTOR's superintendent and assist said superintendent in understanding the intent of the Contract Documents. Assist the ENGINEER in serving as the OWNER's liaison with the CONTRACTOR when the CONTRACTOR's operations affect the OWNER's on-site operations.

## SECTION 00700 - GENERAL CONDITIONS

4. As requested by the ENGINEER, assist in obtaining from the OWNER additional details or information, when required at the site for proper execution of the WORK.
5. Receive and record date of receipt of Shop Drawings and samples, receive samples which are furnished at the site by the CONTRACTOR and notify the ENGINEER of their availability for examination.
6. Conduct on-site observations of the WORK in progress to assist the ENGINEER in determining if the WORK is proceeding in accordance with the Contract Documents.
7. Report to the ENGINEER whenever the Inspector believes that any WORK is unsatisfactory, faulty, or defective or does not conform to the Contract Documents, or does not meet the requirements of any inspection, tests or approval required to be made or has been damaged prior to final payment; and advise the ENGINEER when the Inspector believes WORK should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.
8. Verify that the tests, equipment, and systems startups and operating and maintenance instruction are conducted as required by the Contract Documents and in presence of the required personnel, and that the CONTRACTOR maintains adequate records thereof; observe, record and report to the ENGINEER appropriate details relative to the test procedures and start-ups.
9. Accompany visiting inspectors representing public or other agencies having jurisdiction over the WORK, record the outcome of these inspections, and report to the ENGINEER.
10. Transmit to the CONTRACTOR the ENGINEER's clarifications and interpretations of the Contract Documents.
11. Consider and evaluate the CONTRACTOR's suggestions for modifications in the Contract Documents and report them with recommendations to the ENGINEER.
12. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and sample submittals, reproductions of original Contract Documents including all addenda, Change Orders, field orders, additional Drawings issued subsequent to the execution of the contract, the ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, and other related documents.
13. Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions, list all project visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of performing and observing test procedures. Send copies to the ENGINEER.
14. Record names, addresses, and telephone numbers of the CONTRACTOR, Subcontractors, and major suppliers of materials and equipment.
15. Furnish the ENGINEER with periodic reports as required of progress of the WORK and the CONTRACTOR's compliance with the accepted progress schedule and schedule of CONTRACTOR submittals.
16. Consult with the ENGINEER in advance of scheduled major tests, inspections, or start of important phases of the WORK.
17. Report immediately to the ENGINEER upon the occurrence of any accident.
18. Review applications for payment with the CONTRACTOR for compliance with the established procedure for their submittal and forward them with recommendations to the ENGINEER, noting particularly their relation to the schedule of values, WORK completed, and materials and equipment delivered at the site but not incorporated in the WORK.

## SECTION 00700 - GENERAL CONDITIONS

19. During the course of the WORK, verify that certificates, maintenance and operation manuals, and other data required to be assembled and furnished by the CONTRACTOR are applicable to the items actually installed; and deliver this material to the ENGINEER for its review and forwarding to the OWNER prior to final acceptance of the WORK.
20. Before the ENGINEER prepares a Certificate of Substantial Completion/Notice of completion, as applicable, review the CONTRACTOR's punch list items requiring completion or correction and add any items that CONTRACTOR has omitted.
21. Conduct final inspection in the company of the ENGINEER, the OWNER, and the CONTRACTOR, and prepare a final punch list of items to be completed or corrected.
22. Verify that all items on the punch list have been completed or corrected and make recommendations to the ENGINEER concerning acceptance.

Limitations of Authority. Except upon written instruction of the ENGINEER, the Inspector:

1. Shall not authorize any deviation from the Contract Documents or approve any substitute material or equipment.
2. Shall not exceed limitations on the ENGINEER's authority as set forth in the Contract Documents.
3. Shall not undertake any of the responsibilities of the CONTRACTOR, Subcontractors or CONTRACTOR's superintendent, or expedite the WORK.
4. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences, or procedures of construction unless such is specifically called for in the Contract Documents.
5. Shall not advise on or issue directions as to safety precautions and programs in connection with the WORK.

9.4 CLARIFICATIONS AND INTERPRETATIONS. The ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as the ENGINEER may determine necessary, which shall be consistent with, or reasonably inferred from, the overall intent of the Contract Documents.

9.5 AUTHORIZED VARIATIONS IN WORK. The ENGINEER may authorize variations in the WORK from the requirements of the Contract Documents. These may be accomplished by a Field Order and will require the CONTRACTOR to perform the WORK involved in a manner that minimizes the impact to the WORK and the contract completion date. If the CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time, the CONTRACTOR may make a claim therefor as provided in Article 11 or 12.

9.6 REJECTING DEFECTIVE WORK. The ENGINEER will have authority to reject WORK which the ENGINEER believes to be defective and will also have authority to require special inspection or testing of the WORK as provided in Paragraph 13.3G, whether or not the WORK is fabricated, installed, or completed.

9.7 CONTRACTOR SUBMITTALS, CHANGE ORDERS, AND PAYMENTS

- A. In accordance with the procedures set forth in the General Requirements, the ENGINEER will review all CONTRACTOR submittals, including Shop Drawings, samples, substitutes,

## SECTION 00700 - GENERAL CONDITIONS

or "or equal" items, etc., in order to determine if the items covered by the submittals will, after installation or incorporation in the WORK, conform to the requirements of the Contract Documents and be compatible with the design concept of the completed project as a functioning whole as indicated by the Contract Documents. The ENGINEER's review will not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions or programs incident thereto.

- B. In connection with the ENGINEER's responsibilities as to Change Orders, see Articles 10, 11, and 12.
- C. In connection with the ENGINEER's responsibilities in respect of Applications for Payment, see Article 14.

### 9.8 DECISIONS ON DISPUTES

- A. The ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the WORK thereunder. Claims, disputes, and other matters relating to the acceptability of the WORK; the interpretation of the requirements of the Contract Documents pertaining to the performance of the WORK; and those claims under Articles 11 and 12 in respect to changes in the Contract Price or Contract Time will be referred initially to the ENGINEER in writing with a request for formal decision in accordance with this paragraph, which the ENGINEER will render in writing within 30 days of receipt of the request. Written notice of each such claim, dispute, and other matter will be delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 30 days) after the occurrence of the event giving rise thereto. Written supporting data will be submitted to the ENGINEER within 60 days after such occurrence unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim.
- B. The rendering of a decision by the ENGINEER with respect to any such claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in Paragraph 14.12) will be a condition precedent to any exercise by the OWNER or the CONTRACTOR) of such rights or remedies as either may otherwise have under the Contract Documents or by Law or Regulations in respect of any such claim, dispute, or other matter.

### 9.9 LIMITATION ON ENGINEER'S RESPONSIBILITIES

- A. Neither the ENGINEER's authority to act under this Article or other provisions of the Contract Documents nor any decision made by the ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the ENGINEER to the CONTRACTOR, any Subcontractor, any Supplier, any surety for any of them, or any other person or organization performing any of the WORK.
- B. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as reviewed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review, or judgment of the ENGINEER as to the WORK, it is intended that such requirement, direction, review, or judgment will be solely to evaluate the WORK for compliance with the requirements of the

## SECTION 00700 - GENERAL CONDITIONS

Contract Documents, and conformance with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents, unless there is a specific statement indicating otherwise. The use of any such term or adjective shall not be effective to assign to the ENGINEER any duty or authority to supervise or direct the performance of the WORK or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.9C or 9.9D.

- C. The ENGINEER will not supervise, direct, control, or have authority over or be responsible for the CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of the CONTRACTOR to comply with Laws and Regulations, applicable to the performance of the WORK. The ENGINEER will not be responsible for the CONTRACTOR's failure to perform the WORK in accordance with the Contract Documents.
- D. The ENGINEER will not be responsible for the acts or omissions of the CONTRACTOR nor of any Subcontractor, supplier, or any other person or organization performing any of the WORK.

### ARTICLE 10 CHANGES IN THE WORK

#### 10.1 GENERAL

- A. Without invalidating the Agreement and without notice to any surety, the OWNER may at any time or from time to time, order additions, deletions, or revisions in the WORK; these will be authorized by a written Field Order and/or a Change Order issued by the ENGINEER.
- B. If the CONTRACTOR believes that it is entitled to an increase or decrease in the Contract Price, or an extension or shortening in the Contract Time as the result of a Field Order, a claim may be made as provided in Articles 11 and 12.
- C. If the OWNER and CONTRACTOR agree on the value of any work, or the amount of Contract Time that should be allowed as a result of a Field Order, upon receiving written notice from the ENGINEER, the CONTRACTOR shall proceed so as to minimize the impact on and delays to the work pending the issuance of a Change Order.
- D. If the OWNER and the CONTRACTOR are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of a Field Order, the ENGINEER can direct the CONTRACTOR to proceed on the basis of Time and Materials so as to minimize the impact on and delays to WORK, and a claim may be made therefor as provided in Articles 11 and 12.
- E. The CONTRACTOR shall not be entitled to an increase in the Contract Price nor an extension of the Contract Time with respect to any work performed that is not required by the Contract Documents as amended, modified, supplemented by Change Order, except in the case of an emergency and except in the case of uncovering work as provided in Paragraph 13.3G.

## SECTION 00700 - GENERAL CONDITIONS

- F. The OWNER and the CONTRACTOR shall execute appropriate Change Orders covering:
1. changes in the WORK which are ordered by the OWNER pursuant to Paragraph 10.1A;
  2. changes required because of acceptance of Defective WORK under Paragraph 13.7;
  3. changes in the Contract Price or Contract Time which are agreed to by the parties; or
  4. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by the ENGINEER pursuant to Paragraph 9.8.
- G. If notice of any change is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be the CONTRACTOR's responsibility, and the amount of each applicable Bond shall be adjusted accordingly.

### 10.2 ALLOWABLE QUANTITY VARIATIONS

- A. In the event of an increase or decrease in Bid item quantity of a unit price contract, the total amount of WORK actually done or materials or equipment furnished shall be paid for according to the unit price established for such WORK under the Contract Documents, wherever such unit price has been established; provided, that an adjustment in the Contract Price may be made for changes which result in an increase or decrease in excess of 25% of the estimated quantity of any major item of the WORK. Major Item is defined as any bid item amount that is ten percent (10%) or more of the total contract amount.
- B. In the event a part of the WORK is to be entirely eliminated and no lump sum or unit price is named in the Contract Documents to cover such eliminated work, the price of the eliminated work shall be agreed upon in writing by the OWNER and the CONTRACTOR. If the OWNER and the CONTRACTOR fail to agree upon the price of the eliminated work, said price shall be determined in accordance with the provisions of Article 11.

## ARTICLE 11 CHANGE OF CONTRACT PRICE

### 11.1 GENERAL

- A. The Contract Price constitutes the total compensation payable to the CONTRACTOR for performing the WORK. All duties, responsibilities, and obligations assigned to or undertaken by the CONTRACTOR to complete the WORK shall be at its expense without change in the Contract Price.
- B. The Contract Price may only be changed by a Change Order. Any claim for an increase in the Contract Price shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 7 days) after the start of the occurrence or the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within 14 days after such occurrence (unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR's written statement that the amount claimed covers all known amounts (direct, indirect, and consequential) to which the CONTRACTOR is entitled as a result of said occurrence or event. All claims for adjustment in the Contract Price shall be determined by the ENGINEER in accordance with Paragraph 9.8A if the OWNER and the CONTRACTOR cannot



## SECTION 00700 - GENERAL CONDITIONS

otherwise agree on the amount involved. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this Paragraph 11.1B.

- C. The value of any work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:
1. Where the work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.
  2. By mutual acceptance of a lump sum, which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.4.
  3. On the basis of the cost of work (determined as provided in Paragraphs 11.3) plus a CONTRACTOR's fee for overhead and profit (determined as provided in Paragraph 11.4).

11.2 COSTS RELATING TO WEATHER. The CONTRACTOR shall have no claims against the OWNER for damages for any injury to WORK, materials, or equipment, resulting from the action of the elements. If, however, in the opinion of the ENGINEER, the CONTRACTOR has made all reasonable efforts to protect the materials, equipment and work, the CONTRACTOR may be granted a reasonable extension of Contract Time to make proper repairs, renewals, and replacements of the work, materials, or equipment.

### 11.3 COST OF WORK (BASED ON TIME AND MATERIALS)

- A. General. The term "cost of work" means the sum of all costs necessarily incurred and paid by the CONTRACTOR for labor, materials, and equipment in the proper performance of extra work. Except as otherwise may be agreed to in writing by the OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project; shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.5 EXCLUDED COSTS.
- B. Labor. The costs of labor will be the actual cost for wages prevailing for each craft or type of workers performing the extra work at the time the extra work is done, plus employer payments of payroll taxes, worker's compensation insurance, liability insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs resulting from Federal, State or local laws, as well as assessments or benefits required by lawful collective bargaining agreements. Labor costs for equipment operators and helpers shall be paid only when such costs are not included in the invoice for equipment rental. The labor costs for forepersons shall be proportioned to all of their assigned work and only that applicable to extra work shall be paid. Non-direct labor costs including superintendence shall be considered part of the mark-up set out in paragraph 11.4.
- C. Materials. The cost of materials reported shall be at invoice or lowest current price at which materials are locally available and delivered to the job in the quantities involved, plus the cost of freight, delivery and storage, subject to the following:
1. Trade discounts available to the purchaser shall be credited to the OWNER notwithstanding the fact that such discounts may not have been taken by the CONTRACTOR.

## SECTION 00700 - GENERAL CONDITIONS

2. For materials secured by other than a direct purchase and direct billing to the purchaser, the cost shall be deemed to be the price paid to the actual supplier as determined by the ENGINEER. Mark-up except for actual costs incurred in the handling of such materials will not be allowed.
  3. Payment for materials from sources owned wholly or in part by the purchaser shall not exceed the price paid by the purchaser for similar materials from said sources on extra work items or the current wholesale price for such materials delivered to the work site, whichever price is lower.
  4. If in the opinion of the ENGINEER the cost of material is excessive, or the CONTRACTOR does not furnish satisfactory evidence of the cost of such material, then the cost shall be deemed to be the lowest current wholesale price for the quantity concerned delivered to the work site less trade discount. The OWNER reserves the right to furnish materials for the extra work and no claim shall be allowed by the CONTRACTOR for costs and profit on such materials.
- D. Equipment. The CONTRACTOR will be paid for the use of equipment at the rental rate listed for such equipment specified in the Supplementary General Conditions. Such rental rate will be used to compute payments for equipment whether the equipment is under the CONTRACTOR's control through direct ownership, leasing, renting, or another method of acquisition. The rental rate to be applied for use of each item of equipment shall be the rate resulting in the least total cost to the OWNER for the total period of use. If it is deemed necessary by the CONTRACTOR to use equipment not listed in the publication specified in the Supplementary General Conditions, an equitable rental rate for the equipment will be established by the ENGINEER. The CONTRACTOR may furnish cost data which might assist the ENGINEER in the establishment of the rental rate.
1. All equipment shall, in the opinion of the ENGINEER, be in good working condition and suitable for the purpose for which the equipment is to be used.
  2. Before construction equipment is used on the extra work, the CONTRACTOR shall plainly stencil or stamp an identifying number thereon at a conspicuous location, and shall furnish to the ENGINEER, in duplicate, a description of the equipment and its identifying number.
  3. Unless otherwise specified, manufacturer's ratings and manufacturer approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.
  4. Individual pieces of equipment or tools having a replacement value of \$200 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefor.
  5. Rental time will not be allowed while equipment is inoperative due to breakdowns.
  6. Equipment Rental Rates. Unless otherwise agreed in writing, the CONTRACTOR will be paid for the use of equipment at the rental rate listed for such equipment specified in the current edition of the following reference publication: "Rental Rate Blue Book" as published by Dataquest (a company of the Dunn and Bradstreet Corporation), 1290 Ridder Park Drive, San Jose, CA 95131, telephone number (800) 227-8444.
- E. Equipment on the Work Site. The rental time to be paid for equipment on the work site shall be the time the equipment is in productive operation on the extra work being performed and, in addition, shall include the time required to move the equipment to the location of the extra

## SECTION 00700 - GENERAL CONDITIONS

work and return it to the original location or to another location requiring no more time than that required to return it to its original location; except, that moving time will not be paid if the equipment is used on other than the extra work, even though located at the site of the extra work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power, except that no payment will be made for loading and transporting costs when the equipment is used at the site of the extra work on other than the extra work. The following shall be used in computing the rental time of equipment on the work site.

1. When hourly rates are listed, any part of an hour less than 30 minutes of operation shall be considered to be 1/2-hour of operation, and any part of an hour in excess of 30 minutes will be considered one hour of operation.
  2. When daily rates are listed, any part of a day less than 4 hours operation shall be considered to be 1/2-day of operation. When owner-operated equipment is used to perform extra work to be paid for on a time and materials basis, the CONTRACTOR will be paid for the equipment and operator, as set forth in Paragraphs (3), (4), and (5), following.
  3. Payment for the equipment will be made in accordance with the provisions in Paragraph 11.3D, herein.
  4. Payment for the cost of labor and subsistence or travel allowance will be made at the rates paid by the CONTRACTOR to other workers operating similar equipment already on the work site, or in the absence of such labor, established by collective bargaining agreements for the type of worker and location of the extra work, whether or not the operator is actually covered by such an agreement. A labor surcharge will be added to the cost of labor described herein in accordance with the provisions of Paragraph 11.3B, herein, which surcharge shall constitute full compensation for payments imposed by state and federal laws and all other payments made to or on behalf of workers other than actual wages.
  5. To the direct cost of equipment rental and labor, computed as provided herein, will be added the allowances for equipment rental and labor as provided in Paragraph 11.4, herein.
- F. Specialty Work. Specialty work is defined as that work characterized by extraordinary complexity, sophistication, or innovation or a combination of the foregoing attributes which are unique to the construction industry. The following shall apply in making estimates for payment for specialty work:
1. Any bid item of WORK to be classified as Specialty Work shall be listed as such in the Supplementary General Conditions. Specialty work shall be performed by an entity especially skilled in the work to be performed. After validation of invoices and determination of market values by the ENGINEER, invoices for specialty work based upon the current fair market value thereof may be accepted without complete itemization of labor, material, and equipment rental costs.
  2. When the CONTRACTOR is required to perform work necessitating special fabrication or machining process in a fabrication or a machine shop facility away from the job site, the charges for that portion of the work performed at the off-site facility may, by agreement, be accepted as specialty work and accordingly, the invoices for the work may be accepted without detailed itemization.

**SECTION 00700 - GENERAL CONDITIONS**

3. All invoices for specialty work will be adjusted by deducting all trade discounts offered or available, whether the discounts were taken or not. In lieu of the allowances for overhead and profit specified in Paragraph 11.4, herein, an allowance of 5 percent will be added to invoices for specialty work.

G. Sureties. All work performed hereunder shall be subject to all of the provisions of the Contract Documents and the CONTRACTOR's sureties shall be bound with reference thereto as under the original Agreement. Copies of all amendments to surety bonds or supplemental surety bonds shall be submitted to the OWNER for review prior to the performance of any work hereunder.

**11.4 CONTRACTOR'S FEE**

A. Extra work ordered on the basis of time and materials will be paid for at the actual necessary cost as determined by the ENGINEER, plus allowances for overhead and profit. The allowance for overhead and profit shall include full compensation for superintendence, bond and insurance premiums, taxes, field office expense, extended overhead, home office overhead, and all other items of expense or cost not included in the cost of labor, materials, or equipment provided for under Paragraph 11.3. The allowance for overhead and profit will be made in accordance with the following schedule:

Actual Overhead and Profit Allowance	
Labor .....	15 percent
Materials .....	10 percent
Equipment .....	10 percent

To the sum of the costs and mark-ups provided for in this Article, one percent shall be added as compensation for bonding.

B. It is understood that labor, materials, and equipment may be furnished by the CONTRACTOR or by the Subcontractor on behalf of the CONTRACTOR. When all or any part of the extra work is performed by a Subcontractor, the allowance specified herein shall be applied to the labor, materials, and equipment costs of the Subcontractor, to which the CONTRACTOR may add 5 percent of the Subcontractor's total cost for the extra work. Regardless of the number of hierarchical tiers of Subcontractors, the 5 percent increase above the Subcontractor's total cost which includes the allowances for overhead and profit specified herein may be applied one time only.

**11.5 EXCLUDED COSTS.** The term Cost of the Work shall not include any of the following:

A. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, estimators, attorneys' auditors, accountants, purchasing and contracting agents, expenditures, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the work, or not specifically covered by paragraph 11.3, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

B. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

## SECTION 00700 - GENERAL CONDITIONS

- C. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.
- D. Cost of premiums for all bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by paragraph 11.4 above).
- E. Costs due to the negligence of CONTRACTOR , any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of Defective WORK, disposal of materials or equipment wrongly supplied and making good any damage to property.
- F. Other overhead or general expense costs of any kind and the cost of any item not specifically and expressly included in paragraph 11.4.

### ARTICLE 12 CHANGE OF CONTRACT TIME

#### 12.1 GENERAL

- A. The Contract Time may only be changed by a Change Order. Any claim for an extension of the Contract Time (or Milestones) shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than 30 days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within 60 days after such occurrence (unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the CONTRACTOR'S written statement that the adjustment claimed is the entire adjustment to which the CONTRACTOR has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by the ENGINEER in accordance with Paragraph 9.8 if the OWNER and the CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this Paragraph 12.1A. An increase in Contract Time does not mean that the Contractor is due an increase in Contract Price. Only Compensable time extensions will result in an increase in Contract Price.
- B. All time limits stated in the Contract Documents are of the essence of the Agreement.
- C. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost on the critical path of the project due to such delay if a claim is made therefor as provided in paragraph 12.1. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, unprecedented weather conditions or acts of God. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

## SECTION 00700 - GENERAL CONDITIONS

D. Where CONTRACTOR is prevented from completing any part of the WORK within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost on the critical path of the project due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay. In no event shall the OWNER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from (i) delays caused by or within the control of CONTRACTOR, or (ii) delays beyond the control of both parties including but not limited to fires, floods, epidemics abnormal weather conditions, acts of God or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

12.2 EXTENSIONS OF TIME FOR DELAY DUE TO WEATHER. Contract Time may be extended by the ENGINEER because of delays in completion of the WORK due to unusually severe weather, provided that the CONTRACTOR shall, within 10 days of the beginning of any such delay, notify the ENGINEER in writing of the cause of delay and request an extension of Contract Time. The ENGINEER will ascertain the facts and the extent of the delay and extend the time for completing the work when, in the ENGINEER's judgment, the findings of fact justify such an extension. Unprecedented, abnormal, or unusually severe weather will be defined as an event, or events, with a greater than 50-year recurrence interval, as determined by the National Weather Service, or equivalent State or Federal agency

### **ARTICLE 13 WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK**

13.1 WARRANTY AND GUARANTEE. The CONTRACTOR warrants and guarantees to the OWNER and the ENGINEER that all work will be in accordance with the Contract Documents and will not be defective. Prompt notice of defects known to the OWNER or ENGINEER shall be given to the CONTRACTOR. All defective work, whether or not in place, may be rejected, corrected, or accepted as provided in this Article 13.

13.2 ACCESS TO WORK. OWNER, ENGINEER, their Consultants, sub-consultants, other representatives and personnel of OWNER, independent testing laboratories and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's site safety procedures and programs so that they may comply therewith as applicable.

13.3 TESTS AND INSPECTIONS

A. The CONTRACTOR shall give the ENGINEER timely notice of readiness of the WORK for all required inspections, tests, or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. If Laws or Regulations of any public body having jurisdiction other than the OWNER require any WORK to specifically be inspected, tested, or approved, the CONTRACTOR shall pay all costs in connection therewith. The CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with the OWNER's or the ENGINEER's acceptance of a Supplier of materials or equipment

## SECTION 00700 - GENERAL CONDITIONS

proposed as a substitution or (or-equal) to be incorporated in the WORK, or of materials or equipment submitted for review prior to the CONTRACTOR's purchase thereof for incorporation in the WORK. The cost of all inspections, tests, and approvals in addition to the above which are required by the Contract Documents shall be paid by the OWNER (unless otherwise specified).

- C. The ENGINEER will make, or have made, such inspections and tests as the ENGINEER deems necessary to see that the WORK is being accomplished in accordance with the requirements of the Contract Documents. Unless otherwise specified in the Supplementary General Conditions, the cost of such inspection and testing will be borne by the OWNER. In the event such inspections or tests reveal non-compliance with the requirements of the Contract Documents, the CONTRACTOR shall bear the cost of corrective measures deemed necessary by the ENGINEER, as well as the cost of subsequent reinspection and retesting. Neither observations by the ENGINEER nor inspections, tests, or approvals by others shall relieve the CONTRACTOR from the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.
- D. All inspections, tests, or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations acceptable to the ENGINEER and the CONTRACTOR.
- E. If any work (including the work of others) that is to be inspected, tested, or approved is covered without written concurrence of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for observation. Such uncovering shall be at the CONTRACTOR's expense unless the CONTRACTOR has given the ENGINEER timely notice of the CONTRACTOR's intention to perform such test or to cover the same and the ENGINEER has not acted with reasonable promptness in response to such notice.
- F. If any WORK is covered contrary to the written request of the ENGINEER, it must, if requested by the ENGINEER, be uncovered for the ENGINEER's observation and recovered at the CONTRACTOR's expense.
- G. If the ENGINEER considers it necessary or advisable that covered WORK be observed by the ENGINEER or inspected or tested by others, the CONTRACTOR, at the ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, material, and equipment. If it is found that such work is defective, the CONTRACTOR shall bear all direct, indirect, and consequential costs and damages of such uncovering, exposure, observation, inspection, and testing and of satisfactory reconstruction, including but not limited to fees and charges of engineers, attorneys, and other professionals. However, if such work is not found to be defective, the CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, the CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

- 13.4 OWNER MAY STOP THE WORK. If the WORK is defective, or the CONTRACTOR fails to perform work in such a way that the completed WORK will conform to the Contract Documents, the OWNER may order the CONTRACTOR to stop the WORK, or any portion thereof, until the cause

## SECTION 00700 - GENERAL CONDITIONS

for such order has been eliminated; however, this right of the OWNER to stop the WORK shall not give rise to any duty on the part of the OWNER to exercise this right for the benefit of the CONTRACTOR or any other party.

13.5 CORRECTION OR REMOVAL OF DEFECTIVE WORK. If required by the ENGINEER, the CONTRACTOR shall promptly, either correct all defective work, whether or not fabricated, installed, or completed, or, if the WORK has been rejected by the ENGINEER, remove it from the site and replace it with non-defective work. The CONTRACTOR shall bear all direct, indirect and consequential costs and damages of such correction or removal, including but not limited to fees and charges of engineers, attorneys, and other professionals made necessary thereby.

13.6 ONE YEAR CORRECTION PERIOD

A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any work is found to be defective, the CONTRACTOR shall promptly, without cost to the OWNER and in accordance with OWNER's written notification, (i) correct such Defective WORK, or, if it has been rejected by the OWNER, remove it from the site and replace it with non-defective work, and (ii) satisfactorily correct or remove and replace any damage to other work of others resulting therefrom. If the CONTRACTOR does not promptly comply with such notification, or in an emergency where delay would cause serious risk of loss or damage, the OWNER may have the Defective WORK corrected or the rejected WORK removed and replaced, and all direct, indirect, and consequential costs and damages of such removal and replacement including but not limited to fees and charges of engineers, attorneys and other professionals will be paid by the CONTRACTOR.

B. Where Defective WORK (and damage to other WORK resulting therefrom) has been corrected, removed or replaced under this paragraph 13.6, the correction period hereunder with respect to such WORK will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

13.7 ACCEPTANCE OF DEFECTIVE WORK. If, instead of requiring correction or removal and replacement of defective work, the OWNER prefers to accept the WORK, the OWNER may do so. The CONTRACTOR shall bear all direct, indirect, and consequential costs attributable to the OWNER's evaluation of and determination to accept such defective work. If any such acceptance occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the WORK, and the OWNER shall be entitled to an appropriate decrease in the Contract Price.

## ARTICLE 14 PAYMENTS TO CONTRACTOR AND COMPLETION

14.1 SCHEDULE OF VALUES (LUMP SUM PRICE BREAKDOWN). The schedule of values or lump sum price breakdown established as provided in the General Requirements shall serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to the ENGINEER.

14.2 UNIT PRICE BID SCHEDULE. Progress payments on account of Unit Price work will be based on the number of units completed.



## SECTION 00700 - GENERAL CONDITIONS

### 14.3 APPLICATION FOR PROGRESS PAYMENT

- A. Unless otherwise prescribed by law, on the 25th of each month, the CONTRACTOR shall submit to the ENGINEER for review, an Application for Payment filled out and signed by the CONTRACTOR covering the WORK completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.
- B. The Application for Payment shall identify, as a sub-total, the amount of the CONTRACTOR'S Total Earnings to Date, plus the Value of Materials Stored at the Site which have not yet been incorporated in the WORK, and less a deductive adjustment for materials installed which were not previously incorporated in the WORK, but for which payment was allowed under the provisions for payment for Materials Stored at the Site, but not yet incorporated in the WORK.
- C. The Net Payment Due the CONTRACTOR shall be the above-mentioned subtotal from which shall be deducted the total amount of all previous payments made to the CONTRACTOR. Progress payments will be paid in full in accordance with Article 14 of the General Conditions until 90% of the Contract Price has been paid. The remaining 10% of the Contract Price amount may be withheld until:
  - 1. final inspection has been made;
  - 2. completion of the project; and
  - 3. acceptance of the project by the OWNER.
- D. The Value of Materials Stored at the Site shall be an amount equal to the specified percent of the value of such materials as set forth in the Supplementary General Conditions. Said amount shall be based upon the value of all acceptable materials and equipment not incorporated in the WORK but delivered and suitably stored at the site or at another location agreed to in writing; provided, each such individual item has a value of more than \$5,000.00 and will become a permanent part of the WORK. The Application for Payment shall also be accompanied by an invoice (including shipping), a certification that the materials meet the applicable contract specifications, and any evidence required by the OWNER that the materials and equipment are covered by appropriate property insurance and other arrangements to protect the OWNER's interest therein, all of which will be satisfactory to the OWNER. Payment for materials will not constitute final acceptance. It shall be the CONTRACTOR's responsibility to protect the material from damage, theft, loss, or peril while in storage. Unless otherwise prescribed by law, the Value of Materials Stored at the Site shall be paid at the invoice amount up to a maximum of 85% of the Contract Price for those items.

14.4 CONTRACTOR'S WARRANTY OF TITLE. The CONTRACTOR warrants and guarantees that title to all work, materials, and equipment covered by an Application for Payment, whether incorporated in the WORK or not, will pass to the OWNER no later than the time of payment free and clear of all liens.

### 14.5 REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT

- A. The ENGINEER will, within 7 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to the

## SECTION 00700 - GENERAL CONDITIONS

OWNER, or return the Application to the CONTRACTOR indicating in writing the ENGINEER's reasons for refusing to recommend payment. In the later case, the CONTRACTOR may make the necessary corrections and resubmit the Application, at which point the 7 days for ENGINEER review will begin again. If the ENGINEER still disagrees with a portion of the Application, it will submit the Application recommending the undisputed portion of the Application to the OWNER for payment and provide reasons for recommending non-payment of the disputed amount. Thirty days after presentation of the Application for Payment with the ENGINEER's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.5B) become due and when due will be paid by the OWNER to the CONTRACTOR.

- B. The OWNER may refuse to make payment of the full amount recommended by the ENGINEER because claims have been made against the OWNER on account of the CONTRACTOR's performance of the WORK or Liens have been filed in connection with the WORK or there are other items entitling the OWNER to a credit against the amount recommended, but the OWNER must give the CONTRACTOR written notice within 7 days (with a copy to the ENGINEER) stating the reasons for such action.

### 14.6 PARTIAL UTILIZATION

- A. The OWNER shall have the right to utilize or place into service any item of equipment or other usable portion of the WORK prior to completion of the WORK. Whenever the OWNER plans to exercise said right, the CONTRACTOR will be notified in writing by the OWNER, identifying the specific portion or portions of the WORK to be so utilized or otherwise placed into service.
- B. It shall be understood by the CONTRACTOR that until such written notification is issued, all responsibility for care and maintenance of all of the WORK shall be borne by the CONTRACTOR. Upon issuance of said written notice of partial utilization, the OWNER will accept responsibility for the protection and maintenance of all such items or portions of the WORK described in the written notice.
- C. The CONTRACTOR shall retain full responsibility for satisfactory completion of the WORK, regardless of whether a portion thereof has been partially utilized by the OWNER and the CONTRACTOR's one year correction period shall commence only after the date of Substantial Completion for the WORK.

- 14.7 SUBSTANTIAL COMPLETION. When the CONTRACTOR considers the WORK ready for its intended use the CONTRACTOR shall notify the OWNER and the ENGINEER in writing that the WORK is substantially complete. The CONTRACTOR will attach to this request a list of all work items that remain to be completed and a request that the ENGINEER prepare a Notice of Completion. Within a reasonable time thereafter, the OWNER, the CONTRACTOR, and the ENGINEER shall make an inspection of the WORK to determine the status of completion. If the ENGINEER does not consider the WORK substantially complete, or the list of remaining work items to be comprehensive, the ENGINEER will notify the CONTRACTOR in writing giving the reasons therefor. If the ENGINEER considers the WORK substantially complete, the ENGINEER will prepare and deliver to the OWNER, for its execution and recording, the Notice of Completion signed by the ENGINEER and CONTRACTOR, which shall fix the date of Substantial Completion.

## SECTION 00700 - GENERAL CONDITIONS

14.8 FINAL APPLICATION FOR PAYMENT. After the CONTRACTOR has completed all of the remaining work items referred to in Paragraph 14.7 and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, record as-built documents (as provided in the General Requirements) and other documents, all as required by the Contract Documents, and after the ENGINEER has indicated that the WORK is acceptable, the CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to the OWNER) of all liens arising out of or filed in connection with the WORK.

### 14.9 FINAL PAYMENT AND ACCEPTANCE

- A. If, on the basis of the ENGINEER's observation of the WORK during construction and final inspection, and the ENGINEER's review of the final Application for Payment and accompanying documentation, all as required by the Contract Documents, the ENGINEER is satisfied that the WORK has been completed and the CONTRACTOR's other obligations under the Contract Documents have been fulfilled, the ENGINEER will, within 14 days after receipt of the final Application for Payment, indicate in writing the ENGINEER's recommendation of payment and present the Application to the OWNER for payment.
- B. After acceptance of the WORK by the OWNER's governing body, the OWNER will make final payment to the CONTRACTOR of the amount remaining after deducting all prior payments and all amounts to be kept or retained under the provisions of the Contract Documents, including the following items:
1. Liquidated damages, as applicable.
  2. Two times the value of outstanding items of correction work or punch list items yet uncompleted or uncorrected, as applicable. All such work shall be completed or corrected to the satisfaction of the OWNER within the time stated on the Notice of Completion, otherwise the CONTRACTOR does hereby waive any and all claims to all monies withheld by the OWNER to cover the value of all such uncompleted or uncorrected items.

### 14.10 RELEASE OF RETAINAGE AND OTHER DEDUCTIONS

- A. After executing the necessary documents to initiate the lien period, and not more than 45 days thereafter (based on a 30-day lien filing period and 15-day processing time), the OWNER will release to the CONTRACTOR the retainage funds withheld pursuant to the Agreement, less any deductions to cover pending claims against the OWNER pursuant to Paragraph 14.5B.
- B. After filing of the necessary documents to initiate the lien period, the CONTRACTOR shall have 30 days to complete any outstanding items of correction work remaining to be completed or corrected as listed on a final punch list made a part of the Notice of Completion. Upon expiration of the 45 days, referred to in Paragraph 14.10A, the amounts withheld pursuant to the provisions of Paragraph 14.9B herein, for all remaining work items will be returned to the CONTRACTOR; provided, that said work has been completed or corrected to the satisfaction of the OWNER within said 30 days. Otherwise, the CONTRACTOR does hereby waive any and all claims for all monies withheld by the

## SECTION 00700 - GENERAL CONDITIONS

OWNER under the Contract to cover 2 times the value of such remaining uncompleted or uncorrected items.

- 14.11 **CONTRACTOR'S CONTINUING OBLIGATION.** The CONTRACTOR's obligation to perform and complete the WORK in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by the ENGINEER, nor the issuance of a Notice of Completion, nor any payment by the OWNER to the CONTRACTOR under the Contract Documents, nor any use or occupancy of the WORK or any part thereof by the OWNER, nor any act of acceptance by the OWNER nor any failure to do so, nor any review of a Shop Drawing or sample submittal, will constitute an acceptance of work not in accordance with the Contract Documents or a release of the CONTRACTOR's obligation to perform the WORK in accordance with the Contract Documents.
- 14.12 **FINAL PAYMENT TERMINATES LIABILITY OF OWNER.** Final payment is defined as the last progress payment made to the CONTRACTOR for earned funds, less monies withheld as applicable, pursuant to Paragraph 14.10A. The acceptance by the CONTRACTOR of the final payment referred to in Paragraph 14.9 herein, shall be a release of the OWNER and its agents from all claims of liability to the CONTRACTOR for anything done or furnished for, or relating to, the WORK or for any act of neglect of the OWNER or of any person relating to or affecting the WORK, except demands against the OWNER for the remainder, if any, of the amounts kept or retained under the provisions of Paragraph 14.9 herein; and excepting pending, unresolved claims filed prior to the date of the Notice of Completion.

### ARTICLE 15 SUSPENSION OF WORK AND TERMINATION

- 15.1 **SUSPENSION OF WORK BY OWNER.** The OWNER, acting through the ENGINEER, may, at any time and without cause, suspend the WORK or any portion thereof for a period of not more than 90 days by notice in writing to the CONTRACTOR. The CONTRACTOR shall resume the WORK on receipt from the ENGINEER of a notice of resumption of work. The CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if the CONTRACTOR makes an approved claim therefor as provided in Articles 11 and 12.
- 15.2 **TERMINATION OF AGREEMENT BY OWNER (CONTRACTOR DEFAULT)**
- A. In the event of default by the CONTRACTOR, the OWNER may give 10 days written notice to the CONTRACTOR of OWNER's intent to terminate the Agreement and provide the CONTRACTOR an opportunity to remedy the conditions constituting the default. It shall be considered a default by the CONTRACTOR whenever CONTRACTOR shall: (1) declare bankruptcy, become insolvent, or assign its assets for the benefit of its creditors; (2) fail to provide materials or quality of work meeting the requirements of the Contract Documents; (3) disregard or violate provisions of the Contract Documents or ENGINEER's instructions; (4) fail to prosecute the WORK according to the approved progress schedule; or, (5) fail to provide a qualified superintendent, competent workers, or materials or equipment meeting the requirements of the Contract Documents. If the CONTRACTOR fails to remedy the conditions constituting default within the time allowed, the OWNER may then issue the Notice of Termination.

## SECTION 00700 - GENERAL CONDITIONS

- B. In the event the Agreement is terminated in accordance with Paragraph 15.2A, herein, the OWNER may take possession of the WORK and may complete the WORK by whatever method or means the OWNER may select. The cost of completing the WORK shall be deducted from the balance which would have been due the CONTRACTOR had the Agreement not been terminated and the WORK completed in accordance with the Contract Documents. If such cost exceeds the balance which would have been due, the CONTRACTOR shall pay the excess amount to the OWNER. If such cost is less than the balance which would have been due, the CONTRACTOR shall not have claim to the difference.
- 15.3 TERMINATION OF AGREEMENT BY OWNER (FOR CONVENIENCE). The OWNER may terminate the Agreement at any time if it is found that reasons beyond the control of either the OWNER or CONTRACTOR make it impossible or against the OWNER's interests to complete the WORK. In such a case, the CONTRACTOR shall have no claims against the OWNER except: (1) for the value of work performed up to the date the Agreement is terminated; and, (2) for the cost of materials and equipment on hand, in transit, or on definite commitment, as of the date the Agreement is terminated which would be needed in the WORK and which meet the requirements of the Contract Documents. The value of work performed and the cost of materials and equipment delivered to the site, as mentioned above, shall be determined by the ENGINEER in accordance with the procedure prescribed for the making of the final application for payment and payment under Paragraphs 14.8 and 14.9.
- 15.4 TERMINATION OF AGREEMENT BY CONTRACTOR. The CONTRACTOR may terminate the Agreement upon 10 days written notice to the OWNER, whenever: 1) the WORK has been suspended under the provisions of Paragraph 15.1, herein, for more than 90 consecutive days through no fault or negligence of the CONTRACTOR, and notice to resume work or to terminate the Agreement has not been received from the OWNER within this time period; or, 2) the OWNER should fail to pay the CONTRACTOR any monies due him in accordance with the terms of the Contract Documents and within 60 days after presentation to the OWNER by the CONTRACTOR of a request therefor, unless within said 10-day period the OWNER shall have remedied the condition upon which the payment delay was based. In the event of such termination, the CONTRACTOR shall have no claims against the OWNER except for those claims specifically enumerated in Paragraph 15.3, herein, and as determined in accordance with the requirements of said paragraph.

## ARTICLE 16 MISCELLANEOUS

- 16.1 GIVING NOTICE. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.
- 16.2 RIGHTS IN AND USE OF MATERIALS FOUND ON THE WORK
- A. The CONTRACTOR may use on the Project, with ENGINEER's approval, such stone, gravel, sand, or other material determined suitable by the ENGINEER, as may be found in the excavation. The CONTRACTOR will be paid for the excavation of such material at the corresponding contract unit price. No additional payment will be made for utilizing the material from excavation as borrow, or select borrow.

## SECTION 00700 - GENERAL CONDITIONS

- B. The CONTRACTOR shall replace, at its own expense, with other acceptable material, all of that portion of the excavated material so removed and used which was needed for use on the project. No charge for the materials so used will be made against the CONTRACTOR except that the CONTRACTOR shall be responsible for payment of any royalties required.
  - C. The CONTRACTOR shall not excavate or remove any material from within the Project location which is not within the grading limits, as indicated by the slope and grade lines, without written authorization from the ENGINEER.
  - D. In the event the CONTRACTOR has processed materials from OWNER-furnished sources in excess of the quantities required for performance of this contract, including any waste material produced as a by-product, the City and Borough of Wrangell may retain possession of such materials without obligation to reimburse the CONTRACTOR for the cost of their production. When such materials are in a stockpile, the ENGINEER may require: That it remain in stockpile; the CONTRACTOR level such stockpile(s); or that the CONTRACTOR remove such materials and restore the premises to a satisfactory condition at the CONTRACTOR's expense. This provision shall not preclude the City and Borough of Wrangell from arranging with the CONTRACTOR to produce material over and above the contract needs, payment for which shall be by written agreement between the City and Borough of Wrangell and the CONTRACTOR.
  - E. Unless otherwise provided, the material from any existing old structure may be used temporarily by the CONTRACTOR in the erection of the new structure. Such material shall not be cut or otherwise damaged except with the approval of the ENGINEER.
- 16.3 RIGHT TO AUDIT. If the CONTRACTOR submits a claim to the OWNER for additional compensation, the OWNER shall have the right, as a condition to considering the claim, and as a basis for evaluation of the claim, and until the claim has been settled, to audit the CONTRACTOR's books to the extent they are relevant. This right shall include the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to discover and verify all direct and indirect costs of whatever nature claimed to have been incurred or anticipated to be incurred and for which the claim has been submitted. The right to audit shall include the right to inspect the CONTRACTOR's plants, or such parts thereof, as may be or have been engaged in the performance of the WORK. The CONTRACTOR further agrees that the right to audit encompasses all subcontracts and is binding upon Subcontractors. The rights to examine and inspect herein provided for shall be exercisable through such representatives as the OWNER deems desirable during the CONTRACTOR's normal business hours at the office of the CONTRACTOR. The CONTRACTOR shall make available to the OWNER for auditing, all relevant accounting records and documents, and other financial data, and upon request, shall submit true copies of requested records to the OWNER.
- 16.4 ARCHAEOLOGICAL OR HISTORICAL DISCOVERIES. When the CONTRACTOR's operation encounters prehistoric artifacts, burials, remains of dwelling sites, paleontological remains, such as shell heaps, land or sea mammal bones or tusks, or other items of historical significance, the CONTRACTOR shall cease operations immediately and notify the ENGINEER. No artifacts or specimens shall be further disturbed or removed from the ground and no further operations shall be performed at the site until so directed. Should the ENGINEER order suspension of the CONTRACTOR's operations in order to protect an archaeological or historical finding, or order the

## SECTION 00700 - GENERAL CONDITIONS

CONTRACTOR to perform extra work, such order(s) shall be covered by an appropriate contract change document.

16.5 CONSTRUCTION OVER OR ADJACENT TO NAVIGABLE WATERS. All work over, on, or adjacent to navigable waters shall be so conducted that free navigation of the waterways will not be interfered with and the existing navigable depths will not be impaired, except as allowed by permit issued the U.S. Coast Guard and/or the U.S. Army Corps of Engineers, as applicable.

16.6 GRATUITY AND CONFLICT OF INTEREST. The CONTRACTOR agrees to not extend any loan, gratuity or gift of money of any form whatsoever to any employee or elected official of the OWNER

16.7 SUITS OF LAW CONCERNING THE WORK

A. Should a suit of law be entered into, either by the CONTRACTOR (or the CONTRACTOR's surety) against the OWNER, or by the OWNER against the CONTRACTOR (or the CONTRACTOR's surety), the suit of law shall be tried in the First Judicial District of Alaska.

B. If one of the questions at issue is the satisfactory performance of the work by the CONTRACTOR and should the appropriate court of law judge the work of the CONTRACTOR to be unsatisfactory, then the CONTRACTOR (or the CONTRACTOR's surety) shall reimburse the OWNER for all legal and all other expenses (as may be allowed and set by the court) incurred by the OWNER because of the suit of the law and, further, it is agreed that the OWNER may deduct such expense from any sum or sums then, or any that become due the CONTRACTOR under the contract.

16.8 CERTIFIED PAYROLLS

A. All CONTRACTORs or Subcontractor who perform work on a public construction contract for the OWNER shall file a certified payroll with the Alaska Department of Labor before Friday of each week that covers the preceding week (Section 14-2-4 ACLA 1949; am Section 4 ch 142 SLA 1972).

B. In lieu of submitting the State payroll form, the CONTRACTOR's standard payroll form may be submitted, provided it contains the information required by AS 36.05.040 and a statement that the CONTRACTOR is complying with AS 36.10.010.

C. A CONTRACTOR or Subcontractor, who performs work on public construction in the State, as defined by AS 36.95.010(3), shall pay not less than the current prevailing rate of wages as issued by the Alaska Department of Labor before the end of the pay period. (AS 36.05.010).

16.9 PREVAILING WAGE RATES

A. Wage rates for Laborers and Mechanics on Public Contracts, AS 36.05.070. The CONTRACTOR, or Subcontractors, shall pay all employees unconditionally and not less than once a week. Wages may not be less than those stated in Paragraph 16.8C, regardless of the contractual relationship between the CONTRACTOR or Subcontractors and laborers, mechanics, or field surveyors. The scale of wages to be paid shall be posted by the CONTRACTOR in a prominent, easily accessible place at the site of the WORK.

## SECTION 00700 - GENERAL CONDITIONS

- B. Failure to Pay Agreed Wages, AS 36.05.080. If it is found that a laborer, mechanic, or field surveyor employed by the CONTRACTOR or Subcontractor has been, or is being, paid a rate or wages less than the established rate, the OWNER may, by written notice, terminate the CONTRACTOR or Subcontractors right to proceed with the work. The OWNER may prosecute the work to completion by contract or otherwise, and the CONTRACTOR and sureties will be held liable to the OWNER for excess costs for completing the WORK. (Section 2 ch 52 SLA 1959).
- C. Listing CONTRACTOR's Who Violate Contracts, AS 36.05.090. In addition, a list giving the names of persons who have disregarded the rights of their employees shall be distributed to all departments of State government and all political subdivisions. No person appearing on this list, and no firm, corporation, partnership or association in which the person has an interest, may work as a CONTRACTOR or Subcontractor on a public construction contract for the State, or a political subdivision of the state, until three years after the date of publication of the list. (Section 3 ch 52 SLA 1959; am Section 9 ch 142 SLA).

16.10 EMPLOYMENT REFERENCE. Workers employed in the execution of the contract by the CONTRACTOR or by any Subcontractor under this contract shall not be required or permitted to labor more than 8 hours a day or 40 hours per week in violation of the provisions of the Alaska Wage and Hour Act, Section 23.10.060.

### 16.11 COST REDUCTION INCENTIVE

- A. At any time within 45 days after the date of the Notice of Award, the CONTRACTOR may submit to the ENGINEER in writing, proposals for modifying the plans, specifications, or other requirements of this contract for the sole purpose of reducing the total cost of construction. The cost reduction proposal shall not impair in any manner the essential functions or characteristics of the project, including but not limited to, service life, economy of operation, ease of maintenance, desired appearance or design and safety standards.
- B. The cost reduction proposal shall contain the following information:
  - 1. Description of both the existing contract requirements for performing the WORK and the proposed changes.
  - 2. An itemization of the contract requirements that must be changed if the proposal is adopted.
  - 3. A detailed estimate of the time required and the cost of performing the WORK under both the existing contract and the proposed change.
  - 4. A statement of the date by which the CONTRACTOR must receive the decision from the OWNER on the cost reduction proposal.
  - 5. The contract items of WORK effected by the proposed changes including any quantity variations.
  - 6. A description and estimate of costs the OWNER may incur in implementing the proposed changes, such as test and evaluation and operating and support costs.
  - 7. A prediction of any effects the proposed change would have on future operations and maintenance costs to the OWNER.



## SECTION 00700 - GENERAL CONDITIONS

- C. The provisions of this section shall not be construed to require the OWNER to consider any cost reduction proposal which may be submitted; nor will the OWNER be liable to the CONTRACTOR for failure to accept or act upon any cost reduction proposal submitted, or for delays to the work attributable to the consideration or implementation of any such proposal.
- D. If a cost reduction proposal is similar to a change in the plans or specifications for the project under consideration by the OWNER at the time the proposal is submitted, the OWNER will not accept such proposal and reserves the right to make such changes without compensation to the CONTRACTOR under the provisions of this section.
- E. The CONTRACTOR shall continue to perform the work in accordance with the requirements of the contract until an executed Change Order incorporating the cost reduction proposal has been issued. If any executed Change Order has not been issued by the date upon which the CONTRACTOR's cost reduction proposal specifies that a decision should be made by the OWNER, in writing, the cost reduction proposal shall be considered rejected.
- F. The OWNER, shall be the sole judge of the acceptability of a cost reduction proposal and of the estimated net savings in Contract Time and construction costs resulting from the adoption of all or any part of such proposal. Should the CONTRACTOR disagree with OWNER's decision on the cost reduction proposal, there is no further consideration. The OWNER reserves the right to make final determination.
- G. If the CONTRACTOR's cost reduction proposal is accepted in whole or in part, such acceptance will be made by a contract Change Order, which specifically states that the change is executed pursuant to this cost reduction proposal section. Such Change Order shall incorporate the changes in the plans and specifications which are necessary to permit the cost reduction proposal or such part of it as has been accepted to be put into effect and shall include any conditions upon which the OWNER's approval is based, if such approval is conditional. The Change Order shall also describe the estimated net savings in the cost of performing the work attributable to the cost reduction proposal, and shall further provide that the contract cost be adjusted by crediting the OWNER with the estimated net savings amount.
- H. Acceptance of the cost reduction proposal and performance of the work does not extend the time of completion of the contract, unless specifically provided in the Change Order authorizing the use of the submitted proposal. Should the adoption of the cost reduction proposal result in a Contract Time savings, the total Contract Time shall be reduced by an amount equal to the time savings realized.
- I. The amount specified to the CONTRACTOR in the Change Order accepted in the cost reduction proposal shall constitute full compensation for the performance of WORK. No claims for additional costs as a result of the changes specified in the cost reduction proposal shall be allowed.
- J. The OWNER reserves the right to adopt and utilize any approved cost reduction proposal for general use on any contract administered when it is determined suitable for such application. Cost reduction proposals identical, similar, or previously submitted will not be accepted for consideration if acceptance and compensation has previously been approved. The OWNER

## **SECTION 00700 - GENERAL CONDITIONS**

reserves the right to use all or part of any cost reduction proposal without obligation or compensation of any kind to the CONTRACTOR.

- K. The CONTRACTOR shall bear the costs, if any, to revise all bonds and insurance requirements for the project, to include the cost reduction WORK.

**END OF SECTION**

**SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS**

**GENERAL.** These Supplementary General Conditions make additions, deletions, or revisions to the General Conditions as indicated herein. All provisions which are not so added, deleted, or revised remain in full force and effect. Terms used in these Supplementary General Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

**SGC 2.2 COPIES OF DOCUMENTS.** *Add* the following:

The OWNER shall furnish to the CONTRACTOR up to 5 copies of the Contract Documents which may include bound reduced Drawings. (Note: Full size drawings (22"x36") are not available for this project.) Additional quantities of the Contract Documents will be furnished at reproduction cost.

**SGC 4.2 PHYSICAL CONDITIONS - SUBSURFACE AND EXISTING STRUCTURES.** *Add* the following:

In the preparation of the Contract Documents, the Engineer of Record has relied upon:

1. The following report of exploration and tests of subsurface conditions at the site of the WORK:
  - a. Field measurements and visual inspection of the existing structures and surface conditions.

**SGC 5.2 INSURANCE AMOUNTS.** The limits of liability for the insurance required by Paragraph 5.2 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

- A. Workers' Compensation: (under Paragraph 5.2C.1 of the General Conditions) as in accordance with AS 23.30.045:
  1. State: Statutory
  2. Applicable Federal (e.g., Longshore): Statutory

Note: If the WORK called for in the Contract Documents involves work in or on any navigable waters, the CONTRACTOR shall provide Workers' Compensation coverage which shall include coverage under the Longshore and Harbor Workers' Compensation Act, the Jones Act, and any other coverage required under Federal or State laws pertaining to workers in or on navigable waters.

3. Employers Liability

Bodily Injury by Accident:	\$100,000.00	Each Accident
Bodily Injury by Disease:	\$100,000.00	Each Employee
Bodily Injury by Disease:	\$500,000.00	Policy Limit

  - a. CONTRACTOR agrees to waive all rights of subrogation against the OWNER and ENGINEER for work performed under Contract.
  - b. If CONTRACTOR directly utilizes labor outside of the State of Alaska in the prosecution of the WORK, "Other States" endorsement shall be required as a condition of the Contract.

**SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS**

- B. Commercial General Liability: (under Paragraph 5.2C.2 of the General Conditions):
  - 1. Combined Single Limit
    - a. General Policy \$1,000,000.00 Each Occurrence  
\$2,000,000.00 Annual Aggregate
    - b. Products/Completed Operations \$1,000,000.00 Each Occurrence  
\$2,000,000.00 Annual Aggregate
    - c. Personal Injury \$1,000,000.00 Each Occurrence
- C. Commercial Automobile Liability: (under Paragraph 5.2C.3 of the General Conditions) including Owned, Hired, and Non-Owned Vehicles:  
  
Combined Single Limit, Bodily Injury and Property Damage \$1,000,000.00
- D. Policies shall also specify insurance provided by CONTRACTOR will be considered primary and not contributory to any other insurance available to the OWNER or the ENGINEER.
- E. All policies will provide for 30 (thirty) days written notice prior to any cancellation or non-renewal of insurance policies required under Contract except in the event of no-payment of premium where 10 (ten) days is permissible.
- F. The City and Borough of Wrangell shall be named as an "Additional Insured" under all liability coverages listed in this Section, except for workers' compensation insurance.

**SGC 14.9 FINAL PAYMENT AND ACCEPTANCE.** *Add* the following paragraph:

- B. Prior to the final payment the CONTRACTOR shall contact the Alaska Department of Labor (ADOL) and provide the OWNER with clearance from the ADOL for the CONTRACTOR and all Subcontractors that have worked on the Project. This clearance shall indicate that all Employment Security Taxes have been paid. A sample letter for this purpose is at the end of this section.

**SGC 16.8 CERTIFIED PAYROLLS.** *Change* paragraph A. to read:

- A. All CONTRACTORS and Subcontractors shall conform to State of Alaska's Title 36 Public Contract Requirements as published in the Wage and Hour Administration Pamphlet 400 latest edition.
- B. All CONTRACTORS or Subcontractors who perform work on a public construction contract for the OWNER shall file a certified payroll with Alaska Department of Labor. See Section 00830 - Alaska Labor Standards, Reporting, and Prevailing Wage Rate Determination.

Date: \_\_\_\_\_

To: Alaska Department of Labor  
Juneau Field Tax Office  
FAX 907-465-2374

From: \_\_\_\_\_

**SECTION 00800 - SUPPLEMENTARY GENERAL CONDITIONS**

**Subject WRANGELL MARINE SERVICE CENTER – CONCRETE PAVING PHASE II**

Timeframe of Contract \_\_\_\_\_

Please advise whether or not clearance is granted for the following CONTRACTOR or Subcontractor:

\_\_\_\_\_  
Name Address

Per AS 23.20.265 of the Alaska Employment Security Act, this request is for tax liability clearance and release to make final payment for WORK performed under the subject contract. Please send your response to:

Timothy Rooney, Borough Manager  
City and Borough of Wrangell  
PO Box 531  
Wrangell, Alaska 99929  
Telephone: (907) 874-2381  
Fax: (907) 874-3952

- Tax Clearance is granted.
- Tax Clearance is NOT granted.

Remarks: \_\_\_\_\_

\_\_\_\_\_  
Signature Date

\_\_\_\_\_  
Title

**END OF SECTION**

**SECTION 00830 - ALASKA LABOR STANDARDS, REPORTING, AND  
PREVAILING WAGE RATE DETERMINATION**

State of Alaska, AS 36.05, Department of Labor, Laborers' and Mechanics' Minimum Rates of Pay, AS 36.05.010, and AS 36.05.050, Wage and Hour Administration Pamphlet No. 600, the latest edition published by the State of Alaska, Department of Labor inclusive, are made a part of this contract by reference.

The CONTRACTOR is responsible for contacting the Alaska Department of Labor to determine compliance with current regulations.

Required Reporting During Contract (to be provided by every CONTRACTOR and Subcontractor):

- A. **Certified Payrolls must be submitted every two weeks. Before the second Friday**, each CONTRACTOR and Subcontractor must file Certified Payrolls with Statements of Compliance for the previous two weeks. If there was no activity for that pay period, indicate "**No Activity.**" Indicate "**Start**" on your first payroll, and "**Final**" on your last payroll for this Project. Send to:

***Wage and Hour Section***  
Labor Law Compliance Division  
Alaska Department of Labor  
P.O. Box 020630  
Juneau, AK 99802-0630  
(907) 465-4842

and

***Amber Al-Haddad, Project Manager***  
City & Borough of Wrangell  
P.O. Box 531  
Wrangell, AK 99929  
T 907.874.3494 / F 907.874.2699  
Email [wrgpm@wrangell.com](mailto:wrgpm@wrangell.com)

- B. **Within 10 Days of "Notice of Award/Notice to Proceed"** make a list of **all** Subcontractors. Include their name, address, phone, estimated subcontract amount, and estimated start and finish dates. Send to:

***Amber Al-Haddad, Project Manager***  
City & Borough of Wrangell  
P.O. Box 531  
Wrangell, AK 99929  
T 907.874.3494 / F 907.874.2699  
Email [wrgpm@wrangell.com](mailto:wrgpm@wrangell.com)

and

***Wage and Hour Section***  
Labor Law Compliance Division  
Alaska Department of Labor  
P.O. Box 020630  
Juneau, AK 99802-0630  
(907) 465-4839/4842

- C. Per AS 36.05 the Contractor shall file a Notice of Work and a Notice of Completion. AS 36.05 can be found at the following link:

<http://labor.alaska.gov/lss/forms/Pam400.pdf>

- D. As part of the **final payment request package**:

A completed Compliance Certificate and Release form (provided in Section 01700 - Project Closeout) from every CONTRACTOR and Subcontractor.

Notice of Completion of Public Works from the Department of Labor (Section 01700 – Project Closeout)

A tax clearance from the Department of Labor is required (Section 01700 - Project Closeout)

**END OF SECTION**

## **SECTION 00852 – PERMITS**

### **PART 1 – GENERAL**

#### **INDEX OF PERMITS**

1. State of Alaska, Department of Environmental Conservation, Division of Water, Wastewater Discharge Authorization, Storm Water Project No. 08-WW-009-036.

### **PART 2 - PRODUCTS (Not Used)**

### **PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

# STATE OF ALASKA

**DEPT. OF ENVIRONMENTAL CONSERVATION**  
**DIVISION OF WATER**  
**WASTEWATER DISCHARGE AUTHORIZATION**

**SARAH PALIN, GOVERNOR**  
555 Cordova Street  
Anchorage, AK 99501-2617  
Phone: (907) 269-7692  
Fax: (907) 334-2415  
TTY: (907) 269-7511  
<http://www.state.ak.us/dec/>

January 23, 2008

**RECEIVED**

JAN 25 2008

PND Engineers Inc.  
Juneau Office

Per'Christian Rasmussen  
PND Engineers, Inc.  
9360 Glacier Highway, Suite 100  
Juneau, AK 99801

SUBJECT: Wrangell Marine Service Center - Phase 2;  
Storm Water Project No. 08-WW-009-036

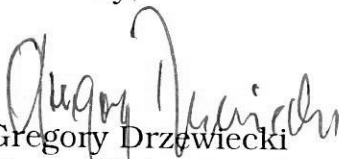
Dear Mr. Rasmussen:

This letter is in response to your conceptual plan submittal received on January 9, 2008. Based on my review, and in accordance with 18 AAC 72, Wastewater Disposal Regulations, the Department's no objection is granted. Please keep me posted if any modifications to subject plan would be incorporated.

This non-objection does not imply the granting of additional authorizations, nor obligate any state, federal, or local body to grant required authorizations.

Thank you for your coordination and cooperation with this Department. If you have any questions, please do not hesitate to contact me.

Sincerely,

  
Gregory Drzewiecki  
Storm Water Coordinator

GD: (G:\W\WQ\NPS\CLER\GREGDRZ\2008-009.036

**"CLEAN WATER"**



**SECTION 00853 – STANDARD DETAILS**

**PART 1 – GENERAL**

- A. The following City and Borough of Juneau Standard details are made a part of these Contract Documents:

STANDARD DETAIL NO.	NAME OF DETAIL
407	MAINLINE VALVE
412	RIGID INSULATION

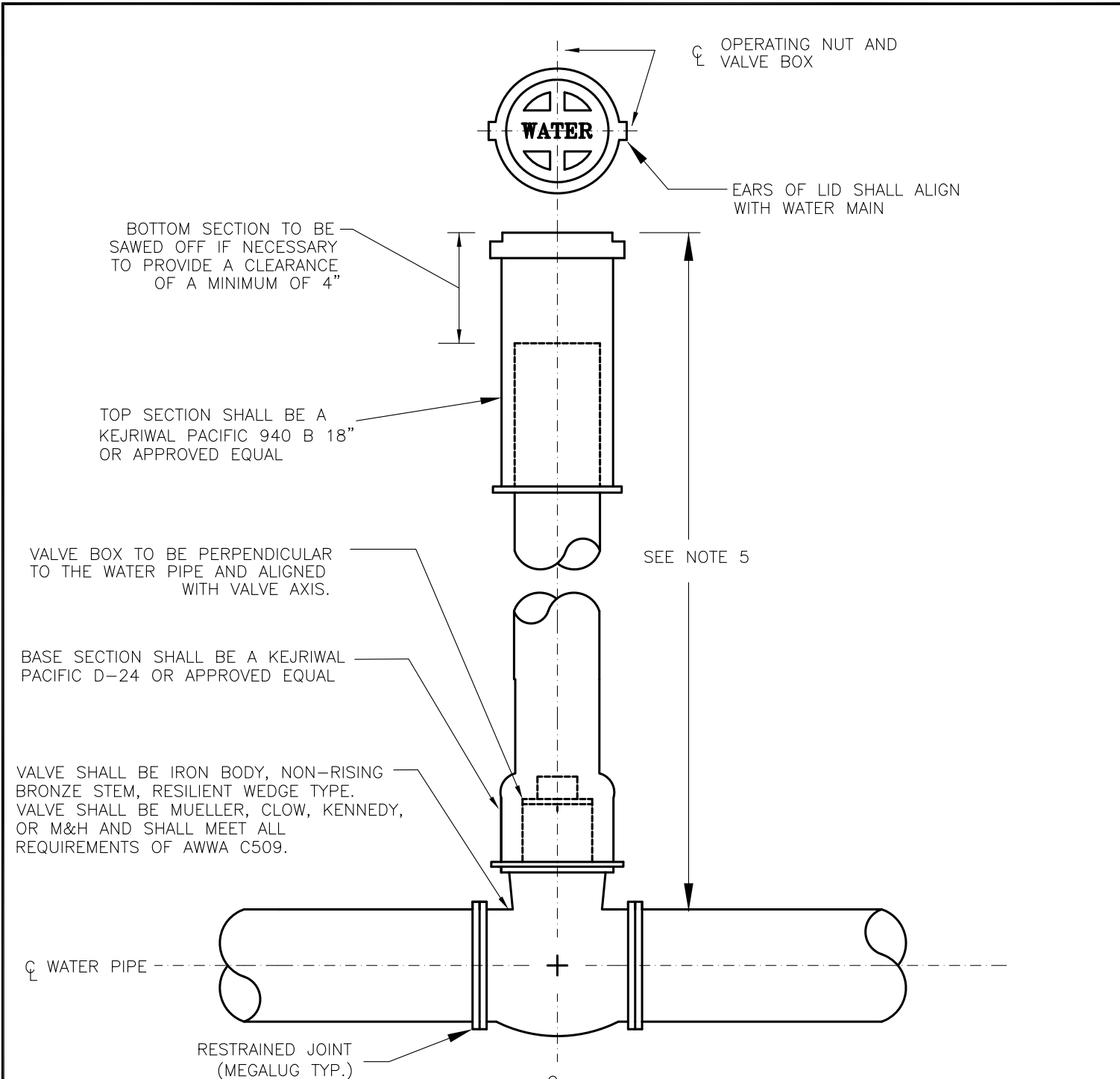
- B. The following City and Borough of Sitka Standard Details are made a part of these Contract Documents:

STANDARD DETAIL NO.	NAME OF DETAIL
30-6	UTILITY STRUCTURE COLLAR DETAIL
50-13	SANITARY CLEANOUT COVER
50-14	SANITARY CLEANOUT

**PART 2 - PRODUCTS** (Not Used)

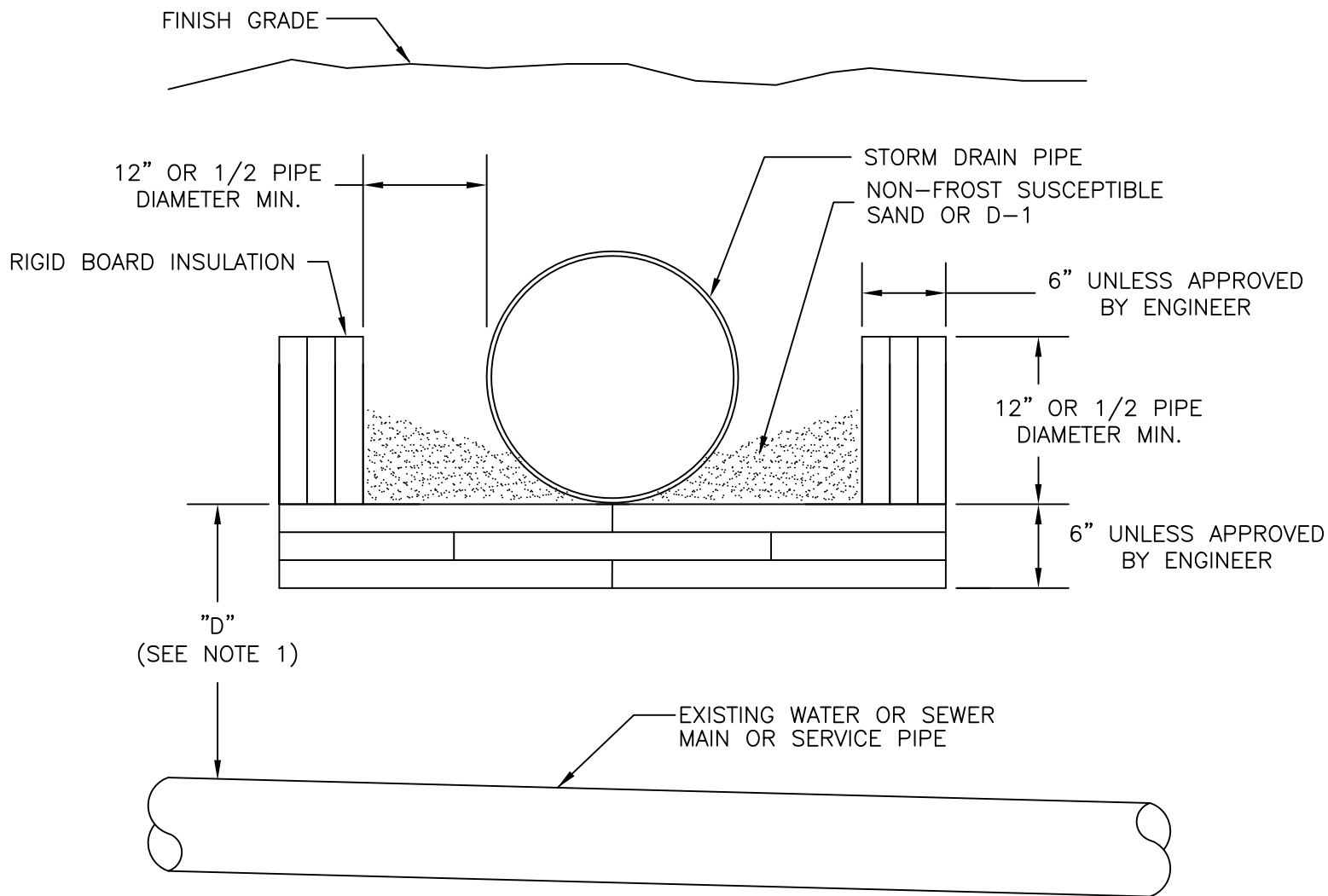
**PART 3 - EXECUTION** (Not Used)

**END OF SECTION**



- NOTES:**
1. A VALVE IS REQUIRED FOR EVERY 500' OF STRAIGHT MAINLINE.
  2. A MINIMUM OF 2 VALVES ARE REQUIRED AT ALL TEES IN MAINLINE. A MINIMUM OF 3 VALVES ARE REQUIRED AT ALL 4-WAY CROSSES IN MAINLINE. NOTE THAT TEES AND CROSSES THAT FEED SERVICES AND FIRE HYDRANTS ARE NOT SUBJECT TO THIS REQUIREMENT.
  3. MAINLINE VALVES REQUIRE THRUST BLOCKS. SEE STANDARD 414C.
  4. IF REQUIRED BY THE ENGINEER, PLACE CONCRETE COLLAR AROUND TOP SECTION PER STANDARD 126.
  5. ON UNPAVED ROADS, RECESS TOP OF VALVE BOX 6" TO 8".
  6. IF WATER PIPE IS MORE THAN 6' DEEP, USE 4" I.D. CAST IRON SOIL PIPE WITH TOP SECTION OF APPROVED CAST IRON VALVE BOX.
  7. THIS DETAIL APPLIES TO ALL MAINLINE VALVES AND ALL WATER VALVES GREATER THAN 4" IN DIAMETER.

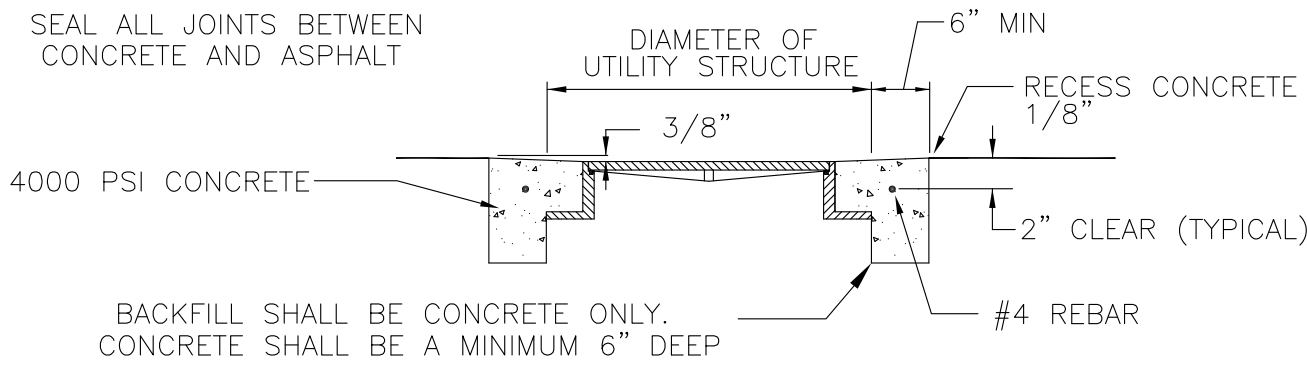
SCALE: NTS	DATE: 9/8/98	CITY AND BOROUGH OF JUNEAU, ALASKA	
DRAWN BY: TAD	CHECKED BY:	MAINLINE VALVE	
APPROVED BY:	REVISED: 2/3/00	STANDARD 407	



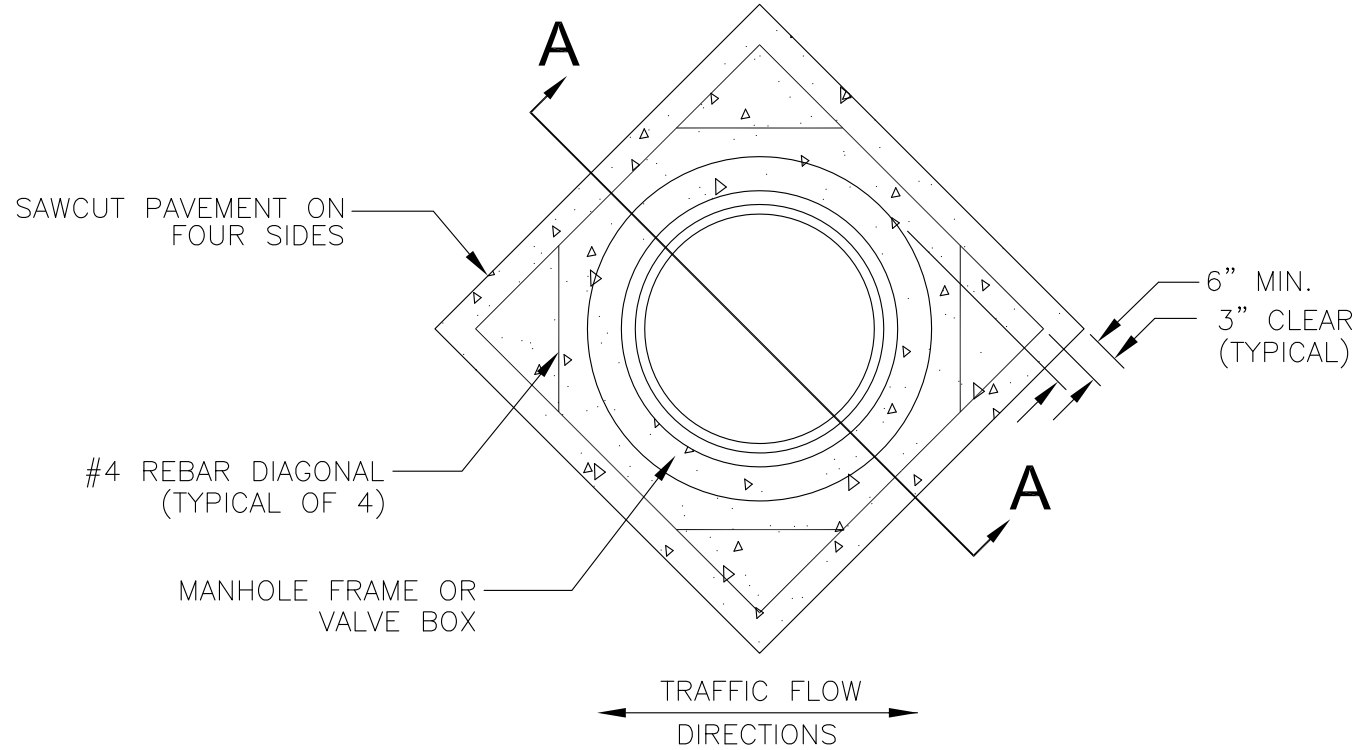
**NOTES**

1. INSTALL INSULATION AS SHOWN WHEN "D" IS LESS THAN 5'-0" FOR WATER PIPE OR 3'8" FOR SEWER PIPE.
2. INSULATION SHALL CONFORM TO SECTION 02607 OF THE STANDARD SPECIFICATIONS.
3. PIPE INSULATION SHALL BE 8'-0" IN LENGTH, CENTERED OVER EXISTING WATER OR SEWER PIPE.
4. PIPE INSULATION WITH R-FACTOR EQUAL TO RIGID BOARD MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.
5. INSULATION BOARDS SHALL OVERLAP 12" AS SHOWN IN DRAWING.

<b>SCALE:</b> NTS	<b>DATE:</b> 7/5/95	<b>CITY AND BOROUGH OF JUNEAU, ALASKA</b>	
<b>DRAWN BY:</b> DRW	<b>CHECKED BY:</b>	<b>RIGID INSULATION</b>	
<b>APPROVED BY:</b>		<b>REVISED:</b> 4/11/00	<b>STANDARD 412</b>



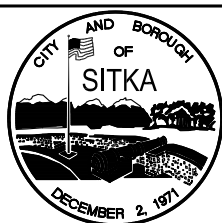
**SECTION A-A**



**PLAN VIEW**

**NOTES:**

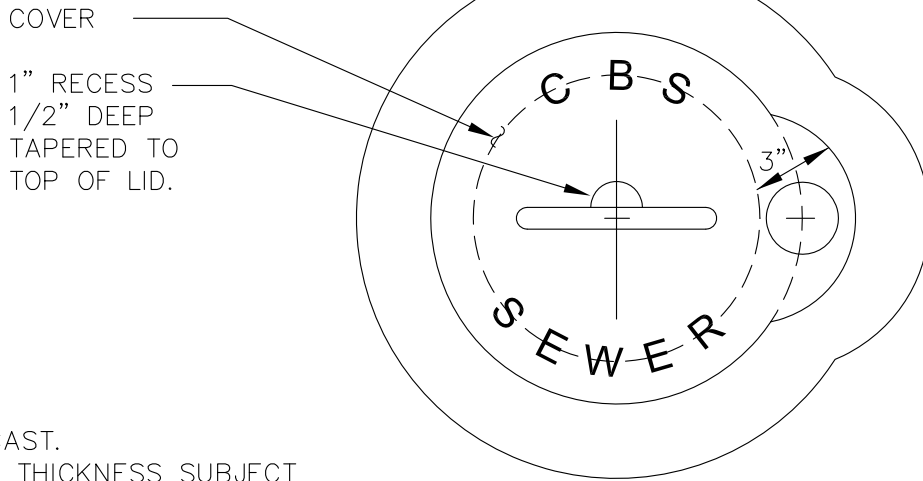
1. INSTALL CONCRETE COLLAR AROUND ALL UTILITY STRUCTURES THAT LIE WITHIN PAVED ROADWAYS.
2. AFTER ADJUSTING STRUCTURE TO FINISH GRADE, BACKFILL WITH CONCRETE ONLY.
3. CURING COMPOUND SHALL BE APPLIED TO THE CONCRETE. APPLICATION SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS.
4. ALL STRUCTURES SHALL BE RAISED TO BASE COURSE GRADE PRIOR TO PAVING.



SCALE:  
NTS  
APPROVED:  
RAR  
REVISED:  
11/29/02

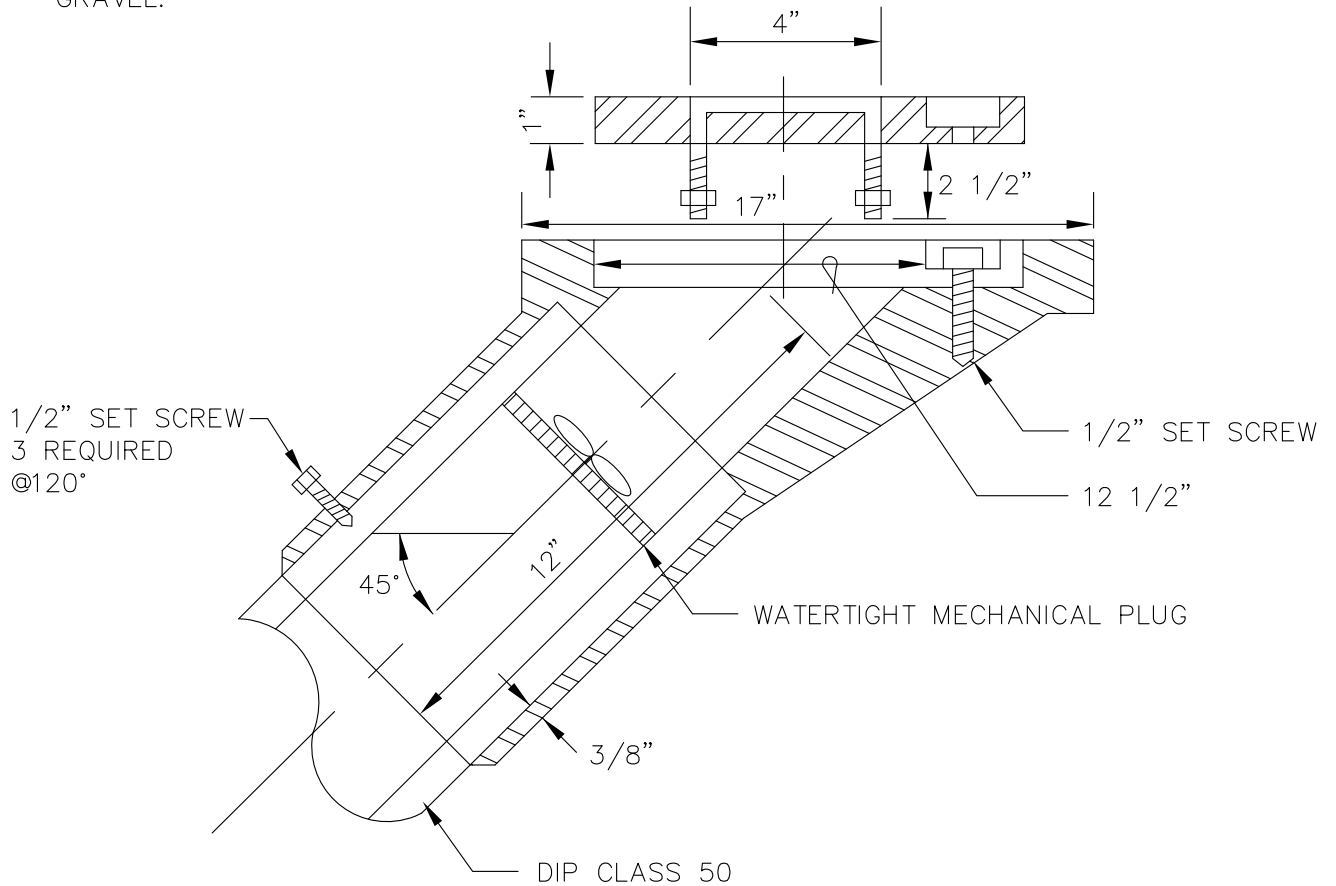
**UTILITY STRUCTURE  
COLLAR DETAIL**

SECTION#  
30.02  
DETAIL #  
30-6



NOTES:

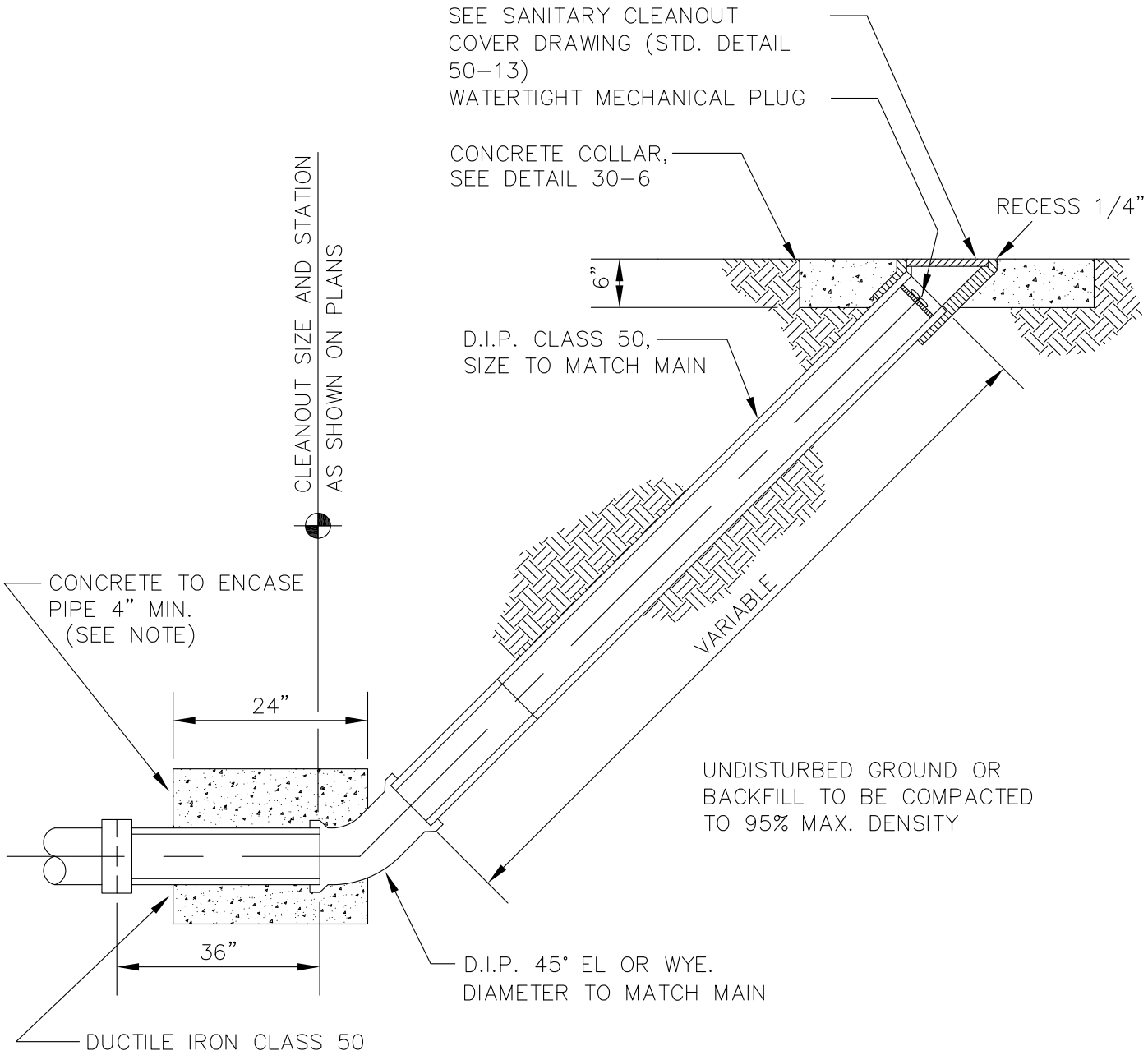
1. TO BE CAST.
2. CASTING THICKNESS SUBJECT TO FOUNDRY REQUIREMENTS.
3. CASTING MUST BE SIZED TO 8" AND OVER, CLASS 50 D.I.P.
4. COVER SHALL BE 1/4" BELOW TOP OF PAVEMENT & 6" BELOW GRAVEL.



SCALE:  
NTS  
APPROVED:  
RAR  
REVISED:  
11/29/02

# SANITARY CLEANOUT COVER

SECTION#  
50.12  
DETAIL #  
50-13



NOTE:

WHEN D.I. PIPE WITH MECHANICAL JOINT IS USED, CONCRETE ENCASMENT IS NOT NECESSARY



SCALE:  
NTS  
APPROVED:  
RAR  
REVISED:  
11/29/02

# SANITARY CLEANOUT

SECTION#  
50.12  
DETAIL #  
50-14

## SECTION 01010 - SUMMARY OF WORK

### PART 1 – GENERAL

#### 1.1 GENERAL

- A. The WORK to be performed under this contract shall consist of furnishing all plant, tools, equipment, materials, supplies, manufactured articles, labor, transportation and services, including fuel, power, water, and essential communications, and performing all WORK, or other operations required for the fulfillment of the contract in strict accordance with the Contract Documents. The WORK shall be complete, and all work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the WORK in good faith shall be provided by the CONTRACTOR as though originally so indicated, at no increase in cost to the OWNER.

#### 1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. The WORK consists of all activities necessary to construct the Wrangell Marine Center Concrete Paving as shown in the contract documents. The facility includes demolition and disposal, excavation, geotextile, shot rock borrow, base course, concrete paving, storm drain system, water system, sewer system, and bollards. The Work is comprised of a Base Bid, Additive Alternate A, Additive Alternate B, Additive Alternate C and Additive Alternate D.

#### 1.3 SITE OF THE WORK

- A. The site of the WORK is located in down town Wrangell, Alaska adjacent to the Nolan Center and Wrangell Seafoods.

#### 1.4 BEGINNING AND COMPLETION OF THE WORK

- A. The sequencing time frame s are the essence of the contract. In accordance with the provisions of Article 2 of SECTION 00500 - AGREEMENT, the CONTRACTOR shall begin the WORK on the date specified in the written Notice to Proceed from the OWNER, and shall complete all the WORK in accordance with the following schedule:

DESCRIPTION (ITEM)	EARLIEST START (DATE)	SUBSTANTIAL COMPLETION (DATE)
AREA 1 - SUBSTANTIAL COMPLETION	NOTICE TO PROCEED (NTP)	JUNE 14, 2013
AREA 1A - SUBSTANTIAL COMPLETION	(NTP)	JUNE 14, 2013
AREA 1B - SUBSTANTIAL COMPLETION	JUNE 14, 2013	JULY 8, 2013
AREA 2 - SUBSTANTIAL COMPLETION	JULY 1, 2013	SEPTEMBER 1, 2013
AREA 2A - SUBSTANTIAL COMPLETION	JULY 1, 2013	SEPTEMBER 1, 2013
AREA 3 - SUBSTANTIAL COMPLETION	SEPTEMBER 1, 2013	NOVEMBER 20, 2013
AREA 3A - SUBSTANTIAL COMPLETION	SEPTEMBER 1, 2013	NOVEMBER 20, 2013
ADDITIVE ALTERNATE A SUBSTANTIAL COMPLETION	MAY 15, 2014	JUNE 30, 2014

**SECTION 01010 - SUMMARY OF WORK**

ADDITIVE ALTERNATE B SUBSTANTIAL COMPLETION	JULY 1, 2014	AUGUST 15, 2014
ADDITIVE ALTERNATE C SUBSTANTIAL COMPLETION	JULY 1, 2014	AUGUST 15, 2014
ADDITIVE ALTERNATE D SUBSTANTIAL COMPLETION	SPRING 2014	AUGUST 15, 2014

B. Additional schedule requirements for completing specific items of WORK are listed on the Plans.

1.5 CONTRACT METHOD

A. The WORK hereunder will be constructed under a unit-price Contract.

1.6 WORK by Others

A. The CONTRACTOR's attention is directed to the fact that WORK may be conducted at the site by other contractors during the performance of the WORK under this Contract. The CONTRACTOR shall conduct its operations so as to cause a minimum of interference with the WORK of such other Contractors, and shall cooperate fully with such Contractors to provide continued safe access to their respective portions of the site, as required to perform WORK under their respective contracts.

B. Interference With WORK On Utilities: The CONTRACTOR shall cooperate fully with all utility forces of the OWNER or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the WORK, and shall schedule the WORK so as to minimize interference with said relocation, altering, or other rearranging of facilities.

1.7 CONTRACTOR USE OF PROJECT SITE

A. The CONTRACTOR's use of the Project site shall be limited to its construction operations in a single area at any given period, including on-site storage of materials. The CONTRACTOR shall coordinate with the OWNER for final staging area limits.

B. The contractor shall be substantially complete on each area prior to moving onto the next area. The work shall be considered substantially complete when the owner can occupy the area for boat yard operations.

C. The contractor shall coordinate and accommodate access through the site for weekly AML barge service to Wrangell.

D. The contractor operations shall not occupy an entire area at once as close coordination with the OWNER must be maintained to accommodate active boat yard operations, including access to vessels, trailer maneuvers, storage and emergency vehicle access shall be maintained.

E.

1.8 OWNER USE OF THE PROJECT SITE

A. The OWNER shall utilize all or part of the existing site during the entire period of construction for the conduct of the OWNER's normal operations. The site is an active boat yard and operations will be on going the entire construction period. The CONTRACTOR shall cooperate and coordinate with the ENGINEER to facilitate the OWNER's operations and to minimize interference with the CONTRACTOR's operations



## SECTION 01010 - SUMMARY OF WORK

at the same time. In any event, the OWNER shall be allowed full access to the entire Project site during the period of construction.

### 1.9 PROJECT MEETINGS

#### A. Pre-Construction Conference

1. Prior to the commencement of WORK at the site, a Pre-Construction Conference will be held at a mutually agreed time and place which shall be attended by the CONTRACTOR's Project manager, its superintendent, and its Subcontractors as the CONTRACTOR deems appropriate. Other attendants will be:
  - a. ENGINEER and the Inspector.
  - b. Representatives of OWNER.
  - c. Governmental representatives as appropriate.
  - d. Others as requested by CONTRACTOR, OWNER, or ENGINEER.
2. Unless previously submitted to the ENGINEER, the CONTRACTOR shall bring one copy each of the following:
  - a. Plan of Operation.
  - b. Project Overview Bar Chart Schedule based on Critical Path scheduling.
  - c. Procurement schedule of major equipment and materials and items requiring long lead time.
  - d. Shop Drawing/Sample/Substitute or "Or Equal" submittal schedule.
  - e. Name and telephone number of CONTRACTOR's Project Supervisor.
  - f. Schedule of Values.
3. The purpose of the Pre-Construction Conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The complete agenda will be furnished to the CONTRACTOR prior to the meeting date.

The CONTRACTOR should be prepared to discuss all of the items listed below:

- a. Status of CONTRACTOR's insurance and bonds.
  - b. CONTRACTOR's tentative schedules.
  - c. Transmittal, review, and distribution of CONTRACTOR's Submittals.
  - d. Processing applications for payment.
  - e. Maintaining record documents.
  - f. Critical Work sequencing.
  - g. Field decisions, RFI's and Change Orders.
  - h. Use of Project site, office and storage areas, security, housekeeping, and OWNER's needs.
  - i. Major equipment deliveries and priorities.
  - j. CONTRACTOR's assignments for safety and first aid.
4. The OWNER will preside at the Pre-Construction Conference and will arrange for keeping and distributing the minutes to all persons in attendance.
5. The CONTRACTOR and its Subcontractors should plan on the conference taking no less than one full working day. The first day will cover the items listed in paragraph 3, and the following day(s) will be spent on reviewing the Plans and Specifications, in extensive detail, with the ENGINEER and the OWNER.

#### B. Progress Meetings

## SECTION 01010 - SUMMARY OF WORK

1. The CONTRACTOR shall schedule and hold regular on-site progress meetings at least weekly and at other times as requested by the ENGINEER, or as required by progress of the WORK. The CONTRACTOR, ENGINEER, and all Subcontractors active on the site must attend each meeting. CONTRACTOR may at its discretion request attendance by representatives of its Suppliers, Manufacturers, and other Subcontractors.
2. The ENGINEER shall preside at the meetings and will arrange for keeping and distributing the minutes. The purpose of the meetings will be to review the progress of the WORK, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop. During each meeting, the CONTRACTOR is required to present any issues which may impact its WORK, with a view to resolve these issues expeditiously.

1.10 DEFINITIONS APPLICABLE TO TECHNICAL SPECIFICATIONS. The following words have the meaning defined in the Technical Portions of the WORK:

**Furnish** - means to supply and deliver to the site, to unload and unpack ready for assembly, installation, testing, and start-up.

**Indicated** - is a word used to direct the CONTRACTOR to information contained on the drawings or in the Specifications. Terms such as "shown," "noted," "scheduled," and "specified" also may be used to assist in locating information but no limitation of location is implied or intended.

**Install** - defines operations at the site including assembly, erection, placing, anchoring, applying, shaping to dimension, finishing, curing, protecting, and cleaning, ready for the OWNER's use.

**Installer** - a person or firm engaged by the CONTRACTOR or its Subcontract or any Subcontractor for the performance of installation, erection, or application work at the site. Installers must be expert in the operations they are engaged to perform.

**Provide** - is defined as furnish and install, ready for the intended use.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

## SECTION 01025 - MEASUREMENT AND PAYMENT

### PART 1 - GENERAL

#### 1.1 SCOPE

- A. Payment for the various items of the Bid Schedule, as further specified herein, shall include all compensation to be received by the CONTRACTOR for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of WORK being described, as necessary to complete the various items of the WORK all in accordance with the requirements of the Contract Documents, including all appurtenances thereto, and including all costs of PERMITS and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA).
- B. No separate payment will be made for any pay item that is not specifically set forth in the Bid Schedule, and all costs therefore shall be included in the prices named in the Bid Schedule for the various appurtenant items of WORK.
- C. In addition to other incidental items of WORK listed elsewhere in the contract, the following items shall also be considered as incidental to other items of WORK under this contract:
  - 1. Removal and replacement of survey monuments and markers disturbed during construction, whether shown on the Plans or not.
  - 2. Re-vegetating areas disturbed during construction.
  - 3. Temporary shoring of trenches or bracing of existing facilities as required for constructing any/all improvements.
  - 4. Erosion, pollution control and SWPPP.
  - 5. Maintenance of all services through the Project area, including water, storm, garbage pickup, mail delivery, other deliveries and emergency vehicles.
  - 6. All traffic control, including flaggers.
  - 7. Minor grading of fill materials as required matching existing grades and maintaining positive surface drainage.
  - 8. Minor changes in grades to fit field conditions.
  - 9. Miscellaneous clearing and grubbing.
  - 10. All concrete saw cuts.
  - 11. Steel pipe bollards.
  - 12. Temporary access between work areas to maintain all boat yard operations.
  - 13. Proof rolling and compaction at bottom of excavation limits.
  - 14. Raising existing utility boxes to finish grade.
  - 15. Temporary support of existing concrete curbing and slabs.
  - 16. Concrete backfill beneath existing curbing and slabs.
  - 17. Removal and reinstallation of existing fencing.
  - 18. Concrete collars.
  - 19. Excavating, bedding, and backfilling for all electrical equipment including pedestals, base foundations, junction boxes, vaults, and conduit.

#### 1.2 FIELD OFFICE (Pay Item No. 1500.1) PRICE BASED ON LUMP SUM

- A. Measurement for payment for Field Office will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.
- B. Payment for Field Office will be made at the amount shown on the Base Bid under Pay

## SECTION 01025 - MEASUREMENT AND PAYMENT

Item No. 1500.1, which payment will constitute full compensation for all WORK described in Section 01500 – Field Office, as shown on the Plans and as directed by the ENGINEER.

### 1.3 MOBILIZATION (Pay Item No. 1505.1, 1505.1-A, 1505.1-B, 1505.1-C and 1505.1-D) PRICE BASED ON LUMP SUM

- A. Measurement for payment for Mobilization will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.
- B. Payment for Mobilization will be made at the amount shown on the Base Bid under Pay Item No. 1505.1, which payment will constitute full compensation for all WORK described in Section 01505 - Mobilization, as shown on the Plans and as directed by the ENGINEER.
- C. Payment for Mobilization under Additive Alternate A will be made at the amount shown on the Bid Schedule under Pay Item No. 1505.1-A, which payment will constitute full compensation for all WORK described in Section 01505 - Mobilization, as shown on the Plans and as directed by the ENGINEER.
- D. Payment for Mobilization under Additive Alternate B will be made at the amount shown on the Bid Schedule under Pay Item No. 1505.1-B, which payment will constitute full compensation for all WORK described in Section 01505 - Mobilization, as shown on the Plans and as directed by the ENGINEER.
- E. Payment for Mobilization under Additive Alternate C will be made at the amount shown on the Bid Schedule under Pay Item No. 1505.1-C, which payment will constitute full compensation for all WORK described in Section 01505 - Mobilization, as shown on the Plans and as directed by the ENGINEER.
- F. Payment for Mobilization under Additive Alternate D will be made at the amount shown on the Bid Schedule under Pay Item No. 1505.1-D, which payment will constitute full compensation for all WORK described in Section 01505 - Mobilization, as shown on the Plans and as directed by the ENGINEER.
- G. Partial payments will be made as the WORK progresses as follows:
  - 1. When 5% of the total original contract amount is earned from other pay items, 50% of the amount bid for Mobilization, or 5% of the original contract amount, whichever is lesser, will be paid.
  - 2. When 10% of the total original contract amount is earned from other pay items, 100% of the amount bid for Mobilization, or 10% of the original Contract amount, whichever is lesser, will be paid.
  - 3. Upon completion of all WORK on the Project, payment of any amount bid for Mobilization in excess of 10% of the total original contract amount will be paid.

### 2.1 DEMOLITION AND DISPOSAL (Pay Item No. 2060.1, 2060.1-A, 2060.1-B, 2060.1-C and 2060.1-D) PRICE BASED ON LUMP SUM

- A. Measurement for payment for Demolition and Disposal will be based upon the completion of the entire WORK as a Lump Sum, Pay Unit, complete, in accordance with the requirements of the Contract Documents, as shown on the Plans, and as directed by the ENGINEER.

## SECTION 01025 - MEASUREMENT AND PAYMENT

- B. WORK under this item includes removal and disposal of all debris within the project excavation prism, including unsuitable excavation, various abandoned piping, concrete, steel and wood debris, all trees, tree clusters, stumps, bushes, manmade and natural shoreline debris, vegetation, organic layers, concrete area drains, concrete collars, and other items within the construction limits, as shown or described on the plans.
  - C. Excavation, stockpiling, hauling and placing suitable surplus material required for demolition and disposal shall not be measured for payment but shall be considered incidental to this item of WORK under the contract.
  - D. Payment for Demolition and Disposal will be made at the Unit Price named in the Base Bid under Pay Item No. 2060.1, which payment will constitute full compensation for all WORK described in Section 02060 – Demolition, Salvage and Disposal, as shown on the Plans, and as directed by the ENGINEER.
  - E. Payment for Demolition and Disposal under Additive Alternate A will be made at the amount shown on the Bid Schedule under Pay Item No. 2060.1-A, which payment will constitute full compensation for all WORK described in Section 02060 – Demolition, Salvage and Disposal, as shown on the Plans, and as directed by the ENGINEER.
  - F. Payment for Demolition and Disposal under Additive Alternate B will be made at the amount shown on the Bid Schedule under Pay Item No. 2060.1-B, which payment will constitute full compensation for all WORK described in Section 02060 – Demolition, Salvage and Disposal, as shown on the Plans, and as directed by the ENGINEER.
  - G. Payment for Demolition and Disposal under Additive Alternate C will be made at the amount shown on the Bid Schedule under Pay Item No. 2060.1-C, which payment will constitute full compensation for all WORK described in Section 02060 – Demolition, Salvage and Disposal, as shown on the Plans, and as directed by the ENGINEER.
  - H. Payment for Demolition and Disposal under Additive Alternate D will be made at the amount shown on the Bid Schedule under Pay Item No. 2060.1-D, which payment will constitute full compensation for all WORK described in Section 02060 – Demolition, Salvage and Disposal, as shown on the Plans, and as directed by the ENGINEER.
- 2.2 FOUNDATION SUB-EXCAVATION (Pay Item No. 2202.1, 2202.1-B, 2202.1-C AND 2202.1-D) PRICE BASED ON QUANTITY, CUBIC YARD
- A. Measurement for payment for Foundation Sub-Excavation will include adjustments for actual fill volume calculated by the ENGINEER based on field survey data provided by the CONTRACTOR. The Bid Schedules are an estimated contingent quantity. This quantity will be adjusted based on the actual field data collected by the contractor and witnessed by the ENGINEER.
  - B. Payment for Foundation Sub-Excavation under the Base Bid shall be made at the Unit Price named in the Bid under Pay Item No. 2202.1, which payment shall constitute full compensation for all WORK described in Section 02202 – Excavation and Embankment, as shown on the plans and as directed by the ENGINEER.
  - C. Payment for Foundation Sub-Excavation under Additive Alternate B will be made at the amount shown on the Bid Schedule under Pay Item No. 2202.1-B, which payment shall constitute full compensation for all WORK described in Section 02202 – Excavation and

## SECTION 01025 - MEASUREMENT AND PAYMENT

Embankment, as shown on the plans and as directed by the ENGINEER.

- D. Payment for Foundation Sub-Excavation under Additive Alternate C will be made at the amount shown on the Bid Schedule under Pay Item No. 2202.1-C, which payment shall constitute full compensation for all WORK described in Section 02202 – Excavation and Embankment, as shown on the plans and as directed by the ENGINEER.
- E. Payment for Foundation Sub-Excavation under Additive Alternate D will be made at the amount shown on the Bid Schedule under Pay Item No. 2202.1-D, which payment shall constitute full compensation for all WORK described in Section 02202 – Excavation and Embankment, as shown on the plans and as directed by the ENGINEER.

### 2.3 FOUNDATION BACKFILL (Pay Item No. 2202.2, 2202.2-B, 2202.2-C AND 2202.2-D) PRICE BASED ON QUANTITY, CUBIC YARD

- A. Measurement for payment for Foundation Backfill will include adjustments for actual fill volume calculated by the ENGINEER based on field survey data provided by the CONTRACTOR. The Bid Schedules are an estimated contingent quantity. This quantity will be adjusted based on the actual field data collected by the contractor and witnessed by the ENGINEER.
- B. Suitable surplus excavation shall be utilized within the foundation backfill prism. The volume of suitable surplus excavation utilized within the foundation backfill prism shall be deducted from the backfill quantity and no separate payment shall be made. Suitable surplus excavation, stockpile and placement is considered incidental to Demolition and Disposal.
- C. Payment for Foundation Backfill under the Base Bid shall be made at the Unit Price named in the Bid under Pay Item No. 2202.2, which payment shall constitute full compensation for all WORK described in Section 02202 – Excavation and Embankment, as shown on the plans and as directed by the ENGINEER.
- D. Payment for Foundation Backfill under Additive Alternate B will be made at the amount shown on the Bid Schedule under Pay Item No. 2202.2-B, which payment shall constitute full compensation for all WORK described in Section 02202 – Excavation and Embankment, as shown on the plans and as directed by the ENGINEER.
- E. Payment for Foundation Backfill under Additive Alternate C will be made at the amount shown on the Bid Schedule under Pay Item No. 2202.2-C, which payment shall constitute full compensation for all WORK described in Section 02202 – Excavation and Embankment, as shown on the plans and as directed by the ENGINEER.
- F. Payment for Foundation Backfill under Additive Alternate D will be made at the amount shown on the Bid Schedule under Pay Item No. 2202.2-D, which payment shall constitute full compensation for all WORK described in Section 02202 – Excavation and Embankment, as shown on the plans and as directed by the ENGINEER.

### 2.4 CLASS A SHOT ROCK BORROW (Pay Item No. 2202.3, 2202.3-B, 2202.3-C AND 2202.3-D) PRICE BASED ON QUANTITY, CUBIC YARD

- A. Measurement for payment for Class A Shot Rock Borrow will be based on the number of

## SECTION 01025 - MEASUREMENT AND PAYMENT

cubic yards of material in place as determined by the average end area method, based upon original ground sections and final design template neat lines. Where impractical to measure by the average end area method, the ENGINEER may approve other acceptable methods involving three-dimensional measurements. Class A Borrow placed outside of the lines, grades and typical sections indicated in the Plans or as directed by the ENGINEER shall not be included in the borrow quantities for pay purposes.

- B. Payment for Class A Shot Rock Borrow under the Base Bid will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2202.3, which payment will constitute full compensation for all WORK described in Section 02202 - Excavation and Embankment, as shown on the Plans and as directed by the ENGINEER.
  - C. Payment for Class A Shot Rock Borrow under Additive Alternate B will be made at the amount shown on the Bid Schedule under Pay Item No. 2202.3-B, which payment will constitute full compensation for all WORK described in Section 02202 - Excavation and Embankment, as shown on the Plans and as directed by the ENGINEER.
  - D. Payment for Class A Shot Rock Borrow under Additive Alternate C will be made at the amount shown on the Bid Schedule under Pay Item No. 2202.3-C, which payment will constitute full compensation for all WORK described in Section 02202 - Excavation and Embankment, as shown on the Plans and as directed by the ENGINEER.
  - E. Payment for Class A Shot Rock Borrow under Additive Alternate D will be made at the amount shown on the Bid Schedule under Pay Item No. 2202.3-D, which payment will constitute full compensation for all WORK described in Section 02202 - Excavation and Embankment, as shown on the Plans and as directed by the ENGINEER.
- 2.5 TEST PITS (Pay Item No. 2202.4, 2202.4-B, 2202.4-C AND 2202.4-D) PRICE BASED ON QUANTITY, EACH
- A. Test Pits shall be measured per each, complete in place including excavation, backfill, compaction and as directed by the ENGINEER in accordance with the Contract Documents.
  - B. Payment for Test Pits under the Base Bid will be made at the amount shown on the Bid Schedule under Pay Item No. 2202.4, which payment will constitute full compensation for all WORK described in Section 02202 – Excavation and Embankment, as shown on the Plans and as directed by the ENGINEER.
  - C. Payment for Test Pits under Additive Alternate B will be made at the amount shown on the Bid Schedule under Pay Item No. 2202.4-B, which payment will constitute full compensation for all WORK described in Section 02202 – Excavation and Embankment, as shown on the Plans and as directed by the ENGINEER.
  - D. Payment for Test Pits under Additive Alternate C will be made at the amount shown on the Bid Schedule under Pay Item No. 2202.4-C, which payment will constitute full compensation for all WORK described in Section 02202 – Excavation and Embankment, as shown on the Plans and as directed by the ENGINEER.
  - E. Payment for Test Pits under Additive Alternate D will be made at the amount shown on the Bid Schedule under Pay Item No. 2202.4-D, which payment will constitute full

## SECTION 01025 - MEASUREMENT AND PAYMENT

compensation for all WORK described in Section 02202 – Excavation and Embankment, as shown on the Plans and as directed by the ENGINEER.

### 2.6 TRENCH EXCAVATION, BACKFILL & BEDDING (Pay Item No. 2203.1) PRICE BASED ON QUANTITY, LINEAR FOOT

- A. Measurement for payment for Trench Excavation, Backfill & Bedding will be based on the number of linear feet of trench excavation, backfill and bedding required for installation of pipelines, other appurtenances, and for ground surface restoration.
- B. Payment for Trench Excavation, Backfill & Bedding under the Base Bid will be made at the amount shown on the Bid Schedule under Pay Item No. 2203.1, which payment will constitute full compensation for all WORK described in Section 02203 – Trenching, as shown on the Plans and as directed by the ENGINEER.

### 2.7 BASE COURSE, GRADING C-1 (Pay Item No. 2204.1 AND 2204.1-D) PRICE BASED ON QUANTITY, CUBIC YARD

- A. Measurement for payment for Base Course, Grading C-1 shall be based on the number of cubic yards of material in place as determined by the average end area method. Where impractical to measure by the average end area method, the ENGINEER may approve other acceptable methods involving three-dimensional measurements. Base Course placed outside of the lines, grades and typical sections indicated in the plans or as directed by the ENGINEER shall not be included in the quantities for pay purposes.
- B. The Bid Schedule includes an estimated contingent quantity of 400 cubic yards of Base Course to transition between the finished edges of concrete to existing grades and accommodates whichever combination of additive alternates are awarded. This quantity will be adjusted based on the actual field data collected by the CONTRACTOR and witnessed by the ENGINEER.
- C. Payment for Base Course, Grading C-1 under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2204.1, which payment shall constitute full compensation for all WORK described in Section 02204 – Base Course, as shown on the plans and as directed by the ENGINEER.
- D. Payment for Base Course, Grading C-1 under Additive Alternate D will be made at the amount shown on the Bid Schedule under Pay Item No. 2204.1-D, which payment shall constitute full compensation for all WORK described in Section 02204 – Base Course, as shown on the plans and as directed by the ENGINEER.

### 2.8 SALVAGE, STOCKPILE & PLACE BASE COURSE, GRADING C-1 (Pay Item No. 2204.2, 2204.2-A, 2204.2-B AND 2204.2-C) PRICE BASED ON QUANTITY, CUBIC YARD

- A. Measurement for payment for Salvage, Stockpile & Place Base Course, Grading C-1 shall be based on the number of cubic yards of material in place as determined by the average end area method. Where impractical to measure by the average end area method, the ENGINEER may approve other acceptable methods involving three-dimensional measurements. Base Course placed outside of the lines, grades and typical sections indicated in the plans or as directed by the ENGINEER shall not be included in the quantities for pay purposes.



## SECTION 01025 - MEASUREMENT AND PAYMENT

- B. Payment for Salvage, Stockpile & Place Base Course, Grading C-1 under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2204.2, which payment shall constitute full compensation for all WORK described in Section 02204 – Base Course, as shown on the plans and as directed by the ENGINEER.
  - C. Payment for Salvage, Stockpile & Place Base Course, Grading C-1 under Additive Alternate A will be made at the amount shown on the Bid Schedule under Pay Item No. 2204.2-A, which payment shall constitute full compensation for all WORK described in Section 02204 – Base Course, as shown on the plans and as directed by the ENGINEER.
  - D. Payment for Salvage, Stockpile & Place Base Course, Grading C-1 under Additive Alternate B will be made at the amount shown on the Bid Schedule under Pay Item No. 2204.2-B, which payment shall constitute full compensation for all WORK described in Section 02204 – Base Course, as shown on the plans and as directed by the ENGINEER.
  - E. Payment for Salvage, Stockpile & Place Base Course, Grading C-1 under Additive Alternate C will be made at the amount shown on the Bid Schedule under Pay Item No. 2204.2-C, which payment shall constitute full compensation for all WORK described in Section 02204 – Base Course, as shown on the plans and as directed by the ENGINEER.
- 2.9 RIPRAP, (Pay Item No. 2205.1) PRICE BASED ON LUMP SUM
- A. Measurement for payment for Riprap will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.
  - B. Payment for Riprap under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2205.1, which payment shall constitute full compensation for all WORK described in Section 02205 – Riprap, as shown in the plans and as directed by the ENGINEER.
- 2.10 SANITARY SEWER PIPE, 8-INCH DIP (Pay Item No. 2401.1) PRICE BASED ON QUANTITY, LINEAR FOOT
- A. Sanitary Sewer Pipes, including all other items necessary for the proper joining of the pipe sections, will be measured by the staked length.
  - B. Pipes for sanitary sewer shall be measured by the staked length, from center to center of structures or to ends of pipe if no structure is present.
  - C. Payment for Sanitary Sewer Pipe, 8-Inch DIP will be made at the Unit Price named in the Base Bid under Item 2401.1, which payment will constitute full compensation for all WORK described in Section 2401- Sanitary Sewer Pipe, as shown on the Plans and as directed by the ENGINEER.
- 2.11 SANITARY SEWER CLEANOUT (Pay Item No. 2401.2) PRICE BASED ON QUANTITY, EACH
- A. Sanitary Sewer Cleanout shall be measured per each, complete in place, as shown in the Plans and in accordance with the Contract Documents.

## SECTION 01025 - MEASUREMENT AND PAYMENT

- B. Connections to the existing system, dissimilar pipe materials, coupling adapters and bends will be included measurement for sanitary sewer cleanout.
  - C. Payment for Sanitary Sewer Cleanout will be made at the Unit Price named in the Base Bid under Pay Item No. 2401.2, which payment shall constitute full compensation for all WORK described in Section 2401- Sanitary Sewer Pipe, as shown on the Plans and as directed by the ENGINEER.
- 2.12 ADJUST STORM DRAIN INLET TO FINISH GRADE, (Pay Item No. 2502.1) PRICE BASED ON QUANTITY, EACH
- A. Adjust Storm Drain Inlet to Finish Grade will be measured per each, complete in place, including all earthwork, concrete risers, grout, frames and covers.
  - B. Payment for Adjust Storm Drain Inlet to Finish Grade shall be made at the Unit Price named in the Base Bid under Pay Item No. 2502.1, which payment shall constitute full compensation for all WORK described in Section 02502 – Storm Sewer Manholes, Inlets, and Catch Basins, as shown in the plans and as directed by the ENGINEER.
- 2.13 OIL WATER SEPARATOR (Pay Item No. 2502.2) PRICE BASED ON QUANTITY, EACH
- A. Oil Water Separator will be measured per each, complete in place, including all earthwork, frames and covers.
  - B. Dissimilar pipe couplings and pipe segments required to connect to existing pipes shall not be measured for payment, but shall be considered incidental to other WORK.
  - C. Payment for Oil Water Separator under the Base Bid will be made at the amount shown on the Bid Schedule under Pay Item No. 2502.2, which payment shall constitute full compensation for all WORK described in Section 02502 – Storm Sewer Manholes, Inlets, and Catch Basins, as shown in the plans and as directed by the ENGINEER.
- 2.14 STORM DRAIN OUTLET STRUCTURE (Pay Item No. 2502.3) PRICE BASED ON QUANTITY, EACH
- A. Storm Drain Outlet Structure will be measured per each, complete in place, including all earthwork, riprap, geotextile, HDG steel pipe, concrete encasement, check valve, hardware, apparatuses, galvanized steel grate, and all other appurtenances, all in accordance with the requirements of the Contract Documents.
  - B. Payment for Storm Drain Outlet Structure shall be made at the Unit Price named in the Base Bid Schedule under Pay Item No. 2502.3, which payment shall constitute full compensation for all WORK described in Section 02502 – Storm Sewer Manholes, Inlets, and Catch Basins, as shown in the plans and as directed by the ENGINEER.
- 2.15 8-INCH DIP WATER PIPE (Pay Item No. 2601.1) PRICE BASED ON QUANTITY, LINEAR FOOT
- A. Measurement for payment for 8-Inch DIP Water Pipe, shall be per linear foot actually installed, complete in place, as required by the Contract Documents and as shown on the

## SECTION 01025 - MEASUREMENT AND PAYMENT

plans.

- B. Payment for 8-Inch DIP Water Pipe, under the Base Bid will be made at the Unit Price named in the Bid Schedule under Pay Item No. 2601.1 which payment shall constitute full compensation for all WORK described in Section 02601 – Water Pipe, as shown on the plans and as directed by the ENGINEER.
- 2.16 6-INCH HDPE WATER PIPE (Pay Item No. 2601.2) PRICE BASED ON QUANTITY, LINEAR FOOT
- A. Measurement for payment for 6-Inch HDPE Water Pipe shall be per linear foot, actually installed, complete in place as required by the Contract Documents and as shown on the plans.
  - B. Payment for 6-Inch HDPE Water Pipe shall be made under the Base Bid at the Unit Price named in the Bid Schedule under Pay Item No. 2601.2, which payment will constitute full compensation for all WORK described in Section 02601 – WATER SERVICES, as shown on the Plans and as directed by the ENGINEER.
- 2.17 6-INCH GATE VALVE (Pay Item No. 2602.1) PRICE BASED ON QUANTITY, EACH
- A. 6-Inch Gate Valve will be measured per each, complete in place with valve box, all in accordance with the requirements of the Contract Documents.
  - B. Payment for 8-Inch Gate Valve shall be made at the Unit Price named in the Base Bid under Pay Item No. 2602.1, which payment shall constitute full compensation for all WORK described in Section 02602 – Valves, as shown in the plans and as directed by the ENGINEER.
- 2.18 CONSTRUCTION SURVEYING (Pay Item No. 2702.1, 2702.1-A, 2702.1-B, 2702.1-C AND 2702.1-D) PRICE BASED ON LUMP SUM
- A. Measurement for payment for Construction Surveying will be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, all in accordance with the requirements of the Contract Documents.
  - B. Payment for Construction Surveying will be made at the Unit Price named in the Base Bid under Pay Item No. 2702.1, which payment will constitute full compensation for all WORK described in Section 02702 - Construction Surveying, as shown on the Plans and as directed by the ENGINEER.
  - C. Payment for Construction Surveying under Additive Alternate A will be made at the amount shown on the Bid Schedule under Pay Item No. 2702.1-A, which payment will constitute full compensation for all WORK described in Section 02702 - Construction Surveying, as shown on the Plans and as directed by the ENGINEER.
  - D. Payment for Construction Surveying under Additive Alternate B will be made at the amount shown on the Bid Schedule under Pay Item No. 2702.1-B, which payment will constitute full compensation for all WORK described in Section 02702 - Construction Surveying, as shown on the Plans and as directed by the ENGINEER.
  - E. Payment for Construction Surveying under Additive Alternate C will be made at the amount shown on the Bid Schedule under Pay Item No. 2702.1-C, which payment will

## SECTION 01025 - MEASUREMENT AND PAYMENT

constitute full compensation for all WORK described in Section 02702 - Construction Surveying, as shown on the Plans and as directed by the ENGINEER.

- F. Payment for Construction Surveying under Additive Alternate D will be made at the amount shown on the Bid Schedule under Pay Item No. 2702.1-D, which payment will constitute full compensation for all WORK described in Section 02702 - Construction Surveying, as shown on the Plans and as directed by the ENGINEER.
- 2.19 16' CANTILEVER ROLLING GATE (Pay Item No. 2707.2) PRICE BASED ON QUANTITY, EACH
- A. Measurement for payment for 16' Cantilever Rolling Gate will be based upon the completion of the entire WORK per each, complete, in accordance with the requirements of the Contract Documents, as shown on the Plans, and as directed by the ENGINEER.
  - B. Payment for 16' Cantilever Rolling Gate under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2707.2, which payment shall constitute full compensation for all WORK described in Section 02707 – Geotextile Reinforcement, as shown on the plans and as directed by the ENGINEER.
- 2.20 GEOTEXTILE REINFORCEMENT (Pay Item No. 2714.1, 2714.1-A, 2714.1-B, 2714.1-C AND 2714.1-D) PRICE BASED ON QUANTITY, SQUARE YARD
- A. Measurement for payment for Geotextile Reinforcement shall be based upon the actual amount of ground surface covered, complete in place. Overlapping area or stitching shall be considered incidental and shall not be measured for direct payment.
  - B. Geotextile Reinforcement installed without the direction and approval of the ENGINEER shall not be measured for payment.
  - C. Payment for Geotextile Reinforcement under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 2714.1, which payment shall constitute full compensation for all WORK described in Section 02714 – Geotextile Reinforcement, as shown on the plans and as directed by the ENGINEER.
  - D. Payment for Geotextile Reinforcement under Additive Alternate A will be made at the amount shown on the Bid Schedule under Pay Item No. 2714.1-A, which payment shall constitute full compensation for all WORK described in Section 02714 – Geotextile Reinforcement, as shown on the plans and as directed by the ENGINEER.
  - E. Payment for Geotextile Reinforcement under Additive Alternate B will be made at the amount shown on the Bid Schedule under Pay Item No. 2714.1-B, which payment shall constitute full compensation for all WORK described in Section 02714 – Geotextile Reinforcement, as shown on the plans and as directed by the ENGINEER.
  - F. Payment for Geotextile Reinforcement under Additive Alternate C will be made at the amount shown on the Bid Schedule under Pay Item No. 2714.1-C, which payment shall constitute full compensation for all WORK described in Section 02714 – Geotextile Reinforcement, as shown on the plans and as directed by the ENGINEER.
  - G. Payment for Geotextile Reinforcement under Additive Alternate D will be made at the amount shown on the Bid Schedule under Pay Item No. 2714.1-D, which payment shall constitute full compensation for all WORK described in Section 02714 – Geotextile Reinforcement, as shown on the plans and as directed by the ENGINEER.

## SECTION 01025 - MEASUREMENT AND PAYMENT

- 3.1 CURB AND GUTTER (Pay Item No. 3303.3) PRICE BASED ON QUANTITY, LINEAR FOOT
- A. Measurement for payment for Curb and Gutter shall be per actual linear foot installed, complete in place, as required by the Contract Documents and as shown on the plans. Measurements shall be made along the face of the curb and shall be continuous across catch basins.
  - B. Payment for Curb and Gutter under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 3303.3, which payment shall constitute full compensation for all WORK described in Section 03303 – Sidewalk, Curb and Gutter, as shown on the plans and as directed by the ENGINEER.
- 3.2 REINFORCED CONCRETE PAVEMENT (Pay Item No. 3305.1, 3305.1-B, 3305.1-C AND 3305.1-D) PRICE BASED ON QUANTITY, SQUARE YARD
- A. Measurement for payment for Reinforced Concrete Pavement shall be based upon the actual amount of ground surface covered, complete in place including preparation of base, all concrete, thickened edges, curbs, reinforcement, hardware, control joints, expansion joints, and all other appurtenances all in accordance with the requirements of the Contract Documents and as shown on the plans.
  - B. Payment for Reinforced Concrete Pavement under Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 3305.1, which payment shall constitute full payment for all WORK described in Section 03305 – Concrete Paving, as shown on the plans and as described by the ENGINEER
  - C. Payment for Reinforced Concrete Pavement under Additive Alternate B will be made at the amount shown on the Bid Schedule under Pay Item No. 3305.1-B, which payment shall constitute full payment for all WORK described in Section 03305 – Concrete Paving, as shown on the plans and as described by the ENGINEER.
  - D. Payment for Reinforced Concrete Pavement under Additive Alternate C shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 3305.1-C, which payment shall constitute full payment for all WORK described in Section 03305 – Concrete Paving, as shown on the plans and as described by the ENGINEER
  - E. Payment for Reinforced Concrete Pavement under Additive Alternate D shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 3305.1-D, which payment shall constitute full payment for all WORK described in Section 03305 – Concrete Paving, as shown on the plans and as described by the ENGINEER.
- 3.3 REINFORCED CONCRETE PAVEMENT OVER SAWDUST (Pay Item No. 3305.2, 3305.2-A, 3305.2-B AND 3305.2-C) PRICE BASED ON QUANTITY, SQUARE YARD
- A. Measurement for payment for Reinforced Concrete Pavement Over Sawdust shall be based upon the actual amount of ground surface covered, complete in place including preparation of base, all concrete, thickened edges, reinforcement, hardware, control joints, expansion joints, and all other appurtenances all in accordance with the requirements of the Contract Documents and as shown on the plans.

## SECTION 01025 - MEASUREMENT AND PAYMENT

- B. Payment for Reinforced Concrete Pavement Over Sawdust under Base Bid shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 3305.2, which payment shall constitute full payment for all WORK described in Section 03305 – Concrete Paving, as shown on the plans and as described by the ENGINEER
- C. Payment for Reinforced Concrete Pavement Over Sawdust under Additive Alternate A will be made at the amount shown on the Bid Schedule under Pay Item No. 3305.2-A, which payment shall constitute full payment for all WORK described in Section 03305 – Concrete Paving, as shown on the plans and as described by the ENGINEER.
- D. Payment for Reinforced Concrete Pavement Over Sawdust under Additive Alternate B shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 3305.2-B, which payment shall constitute full payment for all WORK described in Section 03305 – Concrete Paving, as shown on the plans and as described by the ENGINEER
- E. Payment for Reinforced Concrete Pavement Over Sawdust under Additive Alternate C shall be made at the Unit Price named in the Bid Schedule under Pay Item No. 3305.2-C, which payment shall constitute full payment for all WORK described in Section 03305 – Concrete Paving, as shown on the plans and as described by the ENGINEER.

### 16.1 ELECTRICAL (Pay Item No. 16000.1) PRICE BASED ON LUMP SUM

- A. Measurement for Electrical shall be based upon the completion of the entire WORK as a Lump Sum Pay Unit, complete, including all electrical and pedestal components, and other miscellaneous appurtenances as shown on the Plans and in accordance with the requirements of the Contract Documents.
- B. Payment for Electrical under the Base Bid shall be made at the Unit Price named in the Bid Schedule under Item No. 16000.1, which payment will constitute full payment for all WORK described in Division 16 Electrical, as shown on the Plans and as directed by the ENGINEER.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

## SECTION 01045 - CUTTING AND PATCHING

### PART 1 - GENERAL

#### 1.1 DEFINITION

- A. "Cutting and Patching" is defined to include the cutting and patching of nominally completed and previously existing concrete, steel, wood and miscellaneous metal structures; piping and pavement, in order to accommodate the coordination of WORK, or the installation of other facilities or structures or to uncover other facilities and structures for access or inspection, or to obtain samples for testing, or for similar purposes.

#### 1.2 REQUIREMENTS OF STRUCTURAL WORK

- A. Structural WORK shall not be cut and patched in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio.
- B. Prior to cutting and patching the following categories of WORK, the CONTRACTOR shall obtain the ENGINEER's approval to proceed with:
  - 1. Structural steel
  - 2. Miscellaneous structural metals, including equipment supports, stair systems and similar categories of work
  - 3. Structural concrete
  - 4. Foundation construction including piles
  - 5. Timber and primary wood framing and bullrails
  - 6. Bearing and retaining walls
  - 7. Structural decking
  - 8. Pressurized piping, vessels and equipment
  - 9. Asphalt pavement, concrete or asphalt curb/gutter, and concrete sidewalk
  - 10. Concrete or timber floats

#### 1.3 OPERATIONAL AND SAFETY LIMITATIONS

- A. The CONTRACTOR shall not cut and patch operational elements and safety-related components in a manner resulting in a reduction of capacities to perform in the manner intended or resulting in decreased operational life, increased maintenance, or decreased safety.
- B. Prior to cutting and patching the following categories of WORK, the CONTRACTOR shall obtain the ENGINEER's approval to proceed with:
  - 1. Sheeting, shoring and cross bracing
  - 2. Operating systems and equipment
  - 3. Water, moisture, vapor, air, smoke barriers, membranes and flashing
  - 4. Noise and vibration control elements and systems
  - 5. Control, communication, conveying and electrical wiring systems

#### 1.4 VISUAL REQUIREMENTS

- A. The CONTRACTOR shall not cut and patch WORK which is exposed on the exterior or exposed in occupied spaces, in a manner resulting in a reduction of visual qualities or resulting in substantial evidence of the cut and patch work, both as judged solely by the

## SECTION 01045 - CUTTING AND PATCHING

ENGINEER. The CONTRACTOR shall remove and replace work judged by the ENGINEER to have been cut and patched in a visually unsatisfactory manner.

### 1.5 APPROVALS

- A. Where prior approval of cutting and patching is required, the CONTRACTOR shall submit the request and obtain approval prior to performing the WORK. The request should include a description of why cutting and patching cannot reasonably be avoided; how it will be performed; how structural elements (if any) will be reinforced; products to be used; firms and tradespeople who will perform the WORK; approximate dates of the WORK; and anticipated results in terms of structural, operational, and visual variations from the original WORK.

## PART 2 - PRODUCTS

### 2.1 MATERIALS USED IN CUTTING AND PATCHING

- A. Except as otherwise indicated, the CONTRACTOR shall provide materials for cutting and patching which will result in equal-or-better WORK than the WORK being cut and patched, in terms of performance characteristics and including visual effects where applicable. The CONTRACTOR shall use material identical with the original materials where feasible.
- B. Materials shall comply with the requirements of the Technical Specifications wherever applicable.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. The CONTRACTOR shall provide adequate temporary support for WORK to be cut to prevent failure.
- B. The CONTRACTOR shall provide adequate protection of other WORK during cutting and patching.

### 3.2 INSTALLATION

- A. The CONTRACTOR shall employ skilled tradespeople to perform cutting and patching. Except as otherwise indicated, the CONTRACTOR shall proceed with cutting and patching at the earliest feasible time and perform the WORK promptly.
- B. The CONTRACTOR shall use methods least likely to damage WORK to be retained and WORK adjoining.
  - 1. In general, where physical cutting action is required, the CONTRACTOR shall cut WORK with sawing and grinding tools, not with hammering and chopping tools. Openings through concrete work shall be core-drilled and all final edges shall be ground smooth to prevent wear.
  - 2. Comply with the requirements of Technical Specifications wherever applicable.



## **SECTION 01045 - CUTTING AND PATCHING**

3. Comply with the requirements of applicable sections of Division 2 where cutting and patching requires excavation and backfill.
- C. The CONTRACTOR shall patch with seams which are as invisible as possible and comply with specified tolerances for the WORK.
- D. The CONTRACTOR shall restore exposed seams of patched area; and, where necessary, extend finish restoration onto retained WORK adjoining, in a manner which will eliminate evidence of patching.

**END OF SECTION**

## SECTION 01070 - ACRONYMS OF INSTITUTIONS

### PART 1 - GENERAL

#### 1.1 GENERAL

- A. Wherever in these Specifications references are made to the standards, specifications, or other published data of the various international, national, regional, or local organizations, such organizations may be referred to by their acronym or abbreviation only. As a guide to the user of these Specifications, the following acronyms which may appear in these Specifications shall have the meanings indicated herein.

#### 1.2 ACRONYMS

AAMA	Architectural Aluminum Manufacturer's Association
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturer's Association, Inc.
AGA	American Gas Association
AGMA	American Gear Manufacturer's Association
AHAM	Association of Home Appliance Manufacturers
AI	The Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANS	American Nuclear Society
ANSI	American National Standards Institute, Inc.
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
ASA	Acoustical Society of America
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASLE	American Society of Lubricating Engineers
ASME	American Society of Mechanical Engineers
ASQC	American Society for Quality Control
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
ATM	Alaska Test Methods
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BBC	Basic Building Code, Building Officials and Code Administrators International
BHMA	Builders Hardware Manufacturer's Association
CBM	Certified Ballast Manufacturers

## SECTION 01070 - ACRONYMS OF INSTITUTIONS

CEMA	Conveyors Equipment Manufacturer's Association
CGA	Compressed Gas Association
CLFMI	Chain Link Fence Manufacturer's Institute
CMA	Concrete Masonry Association
CRSI	Concrete Reinforcing Steel Institute
DCDMA	Diamond Core Drill Manufacturer's Association
EIA	Electronic Industries Association
ETL	Electrical Test Laboratories
FPL	Forest Products Laboratory
HI	Hydronics Institute
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IME	Institute of Makers of Explosives
IOS	International Organization for Standardization
IP	Institute of Petroleum (London)
IPC	Institute of Printed Circuits
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
ITE	Institute of Traffic Engineers
MBMA	Metal Building Manufacturer's Association
MPTA	Mechanical Power Transmission Association
MTI	Marine Testing Institute
NAAMM	National Association of Architectural Metal Manufacturer's
NACE	National Association of Corrosion Engineers
NBS	National Bureau of Standards
NCCLS	National Committee for Clinical Laboratory Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NLGI	National Lubricating Grease Institute
NMA	National Microfilm Association
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
RIS	Redwood Inspection Service
RVIA	Recreational Vehicle Industry Association
RWMA	Resistance Welder Manufacturer's Association
SAE	Society of Automotive Engineers
SAMA	Scientific Apparatus Makers Association
SMA	Screen Manufacturers Association
SMACCNA	Sheet Metal and Air Conditioning Contractors National Association
SPIB	Southern Pine Inspection Bureau
SPR	Simplified Practice Recommendation
SSA	Swedish Standards Association
SSBC	Southern Standard Building Code, Southern Building Code Congress
SSPC	Steel Structures Painting Council
SSPWC	Standard Specifications for Public Works Construction
TAPPI	Technical Association of the Pulp and Paper Industry
TFI	The Fertilizer Institute

**SECTION 01070 - ACRONYMS OF INSTITUTIONS**

UBC	Uniform Building Code
UL	Underwriters Laboratories, Inc.
WCLIB	West Coast Lumber Inspection Bureau
WCRSI	Western Concrete Reinforcing Steel Institute
WIC	Woodwork Institute of California
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

## SECTION 01090 - REFERENCE STANDARDS

### PART 1 - GENERAL

#### 1.1 GENERAL

- A. Titles of Sections and Paragraphs: Captions accompanying specification sections and paragraphs are for convenience of reference only, and do not form a part of the Specifications.
- B. Applicable Publications: Whenever in these Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the WORK is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the Drawings shall be waived because of any provision of, or omission from, said standards or requirements.
- C. Specialists, Assignments: In certain instances, specification text requires (or implies) that specific work is to be assigned to specialists or expert entities, who must be engaged for the performance of that work. Such assignments shall be recognized as special requirements over which the CONTRACTOR has no choice or option. These requirements shall not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the WORK; also they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of contract requirements remains with the CONTRACTOR.

#### 1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Without limiting the generality of other requirements of the Specifications, all WORK specified herein shall conform to or exceed the requirements of applicable codes and the applicable requirements of the following documents.
- B. References herein to "Building Code" or "Uniform Building Code" shall mean Uniform Building Code of the International Conference of Building Officials (ICBO).
- C. Similarly, references to "Mechanical Code" or "Uniform Mechanical Code," "Plumbing Code" or "Uniform Plumbing Code," "Fire Code" or "Uniform Fire Code," shall mean Uniform Mechanical Code, Uniform Plumbing Code and Uniform Fire Code of the International Conference of the Building Officials (ICBO). "Electric Code" or "National Electric Code (NEC)" shall mean the National Electric Code of the National Fire Protection Association (NFPA). The latest edition of the codes as approved by the Municipal Code and used by the local agency as of the date that the WORK is advertised for bids, as adopted by the agency having jurisdiction, shall apply to the WORK herein, including all addenda, modifications, amendments, or other lawful changes thereto.
- D. In case of conflict between codes, reference standards, drawings and the other Contract Documents, the most stringent requirements shall govern. All conflicts shall be brought

## **SECTION 01090 - REFERENCE STANDARDS**

to the attention of the ENGINEER for clarification and directions prior to ordering or providing any materials or furnishing labor. The CONTRACTOR shall bid for the most stringent requirements.

- E. The CONTRACTOR shall construct the WORK specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed herein.
- F. Applicable Standard Specifications: References in Contract Sections 02801 -Asphalt Concrete Pavement to Standard Specifications shall mean the Alaska Department of Transportation and Public Facilities "Standard Specifications for Highway Construction - 1998" and any supplements or amendments thereto.
- G. References herein to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- H. References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

## SECTION 01300 - CONTRACTOR SUBMITTALS

### PART 1 - GENERAL

#### 1.1 GENERAL

- A. Whenever submittals are required hereunder, all such submittals by the CONTRACTOR shall be submitted to the ENGINEER.
- B. Within 14 days after the date of commencement as stated in the Notice of Award/Notice to Proceed, the CONTRACTOR shall submit the following items to the ENGINEER for review:
  - 1. A preliminary schedule of Shop Drawing, Sample and proposed Substitutes or "Or-Equal" submittals.
  - 2. A list of all permits and licenses the CONTRACTOR shall obtain indicating the agency required to grant the permit and the expected date of submittal for the permit and the required date for receipt of the permit.
  - 3. A complete progress schedule for all phases of the project, based on Critical Path Scheduling.
  - 4. All required Material Safety Data Sheets.
  - 5. A staging and traffic maintenance plan, as required.
  - 6. A plan for temporary erosion control and pollution control, as required.
  - 7. A letter designating the CONTRACTOR's Superintendent, defining that person's responsibility and authority, and providing a specimen of his signature.
  - 8. A letter designating the CONTRACTOR's safety representative and the person's responsibility and authority.
  - 9. Schedule of Values.

#### 1.2 SHOP DRAWING SUBMITTAL

- A. Wherever called for in the Contract Documents, or where required by the ENGINEER, the CONTRACTOR shall furnish to the ENGINEER, for review, electronic submittals in PDF format or 4 copies of each shop drawing submittal, one of which will be returned to the Contractor. The term "Shop Drawings" as used herein shall be understood to include detail design calculations, shop drawings, fabrication and installation drawings, erection drawings, lists, graphs, operating instructions, catalog sheets, data sheets, and similar items.
- B. All Shop Drawing Submittals shall be accompanied by the ENGINEER's standard submittal transmittal form. The form may be obtained in quantity from the ENGINEER. Any submittal not accompanied by such a form, or where all applicable items on the form are not completed, will be returned for resubmittal.
- C. Normally, a separate transmittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Transmittal of a submittal of various items using a single transmittal form will be permitted only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates review of the group or package as a whole. A multiple-page submittal shall be collated into sets, and each set shall be stapled or bound, as appropriate, prior to transmittal to the ENGINEER.

## SECTION 01300 - CONTRACTOR SUBMITTALS

- D. Except as otherwise provided herein, the ENGINEER will return prints of each submittal to the CONTRACTOR with its comments noted thereon, within 21 calendar days following their receipt by the ENGINEER. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submittal to the ENGINEER by the second submission of a submittal item. The OWNER reserves the right to withhold monies due to the CONTRACTOR to cover additional costs of the ENGINEER review beyond the second submittal. The ENGINEER's maximum review period for each submittal including all re-submittals will be 21 days per submission. In other words, for a submittal that requires two re-submittals before it is complete, the maximum review period for that submittal could be 63 days.
- E. If a submittal is returned to the CONTRACTOR marked "NO EXCEPTIONS TAKEN," formal revision and resubmission of said submittal will not be required.
- F. If a submittal is returned to the CONTRACTOR marked "MAKE CORRECTIONS NOTED," formal revision and resubmission of said submittal is not required.
- G. If one copy of the submittal is returned to the CONTRACTOR marked "AMEND-RESUBMIT," the CONTRACTOR shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the ENGINEER.
- H. If one copy of the submittal is returned to the CONTRACTOR marked "REJECTED-RESUBMIT," the CONTRACTOR shall revise said submittal and shall resubmit the required number of copies of said revised submittal to the ENGINEER.
- I. Fabrication of an item may be commenced only after the ENGINEER has reviewed the pertinent submittal and returned copies to the CONTRACTOR marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED." Corrections indicated on submittal shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis for changes to the Contract requirements. Only a change order can alter the contract price, time, or requirements.
- J. All CONTRACTOR shop drawing submittals shall be carefully reviewed by an authorized representative of the CONTRACTOR, prior to submission to the ENGINEER. Each submittal shall be dated, signed, and certified by the CONTRACTOR, as being correct and in strict conformance with the Contract Documents. In the case of shop drawings, each sheet shall be so dated, signed, and certified. No consideration for review by the ENGINEER of any CONTRACTOR submittal will be made for any items which have not been so certified by the CONTRACTOR. All non-certified submittals will be returned to the CONTRACTOR without action taken by the ENGINEER, and any delays caused thereby shall be the total responsibility of the CONTRACTOR.
- K. The ENGINEER's review of CONTRACTOR shop drawing submittals shall not relieve the CONTRACTOR of the entire responsibility for the correctness of details and dimensions. The CONTRACTOR shall assume all responsibility and risk for any misfits due to any errors in CONTRACTOR submittals. The CONTRACTOR shall be responsible for the dimensions and the design of adequate connections and details.

### 1.3 SAMPLES SUBMITTAL



## SECTION 01300 - CONTRACTOR SUBMITTALS

- A. Whenever in the Specifications samples are required, the CONTRACTOR shall submit not less than 3 samples of each item or material to the ENGINEER for acceptance at no additional cost to the OWNER.
- B. Samples, as required herein, shall be submitted for acceptance a minimum of 21 days prior to ordering such material for delivery to the job site, and shall be submitted in an orderly sequence so that dependent materials or equipment can be assembled and reviewed without causing delays in the WORK.
- C. All samples shall be individually and indelibly labeled or tagged, indicating thereon all specified physical characteristics and Supplier's names for identification and submitted to the ENGINEER for acceptance. Upon receiving acceptance of the ENGINEER, one set of the samples will be stamped and dated by the ENGINEER and returned to the CONTRACTOR, and one set of samples will be retained by the ENGINEER, and one set of samples shall remain at the job site until completion of the WORK.
- D. Unless clearly stated otherwise, it is assumed that all colors and textures of specified items presented in sample submittal are from the manufacturer's standard colors and standard materials, products, or equipment lines. If the samples represent non-standard colors, materials, products or equipment lines, and their selection will require an increase in contract time or price, the CONTRACTOR will clearly indicate this on the transmittal page of the submittal.

### 1.4 TECHNICAL MANUAL SUBMITTAL (O&M MANUAL)

- A. Using the outline provided in the Equipment Maintenance Summary Sheet (copy of which may be obtained from the ENGINEER), the CONTRACTOR shall include (5) five copies of the technical manuals for each item of civil, mechanical, electrical, and instrumentation equipment, the following:
  - 1. All Civil Submittals as listed in the submittal register.
  - 2. Complete operating instructions, including location of controls, special tools or other equipment required, related instrumentation, and other equipment needed for operation
  - 2. Lubrication schedules, including the lubricant SAE grade and type, temperature range of lubricants, and including frequency of required lubrication.
  - 3. Preventive maintenance procedures and schedules.
  - 4. Parts lists, by generic title and identification number, complete, with exploded views of each assembly.
  - 5. Disassembly and reassembly instructions.
  - 6. Name and location of nearest supplier and spare parts warehouse.
  - 7. Recommended troubleshooting and startup procedures.
  - 8. Reproducible prints of the record drawings, including diagrams and schematics, as required under the electrical and instrumentation portions of these Specifications.
  - 9. Tabulation of proper settings for all pressure relief valves, (low/high) pressure switches and other related equipment protection devices.
  - 10. Detailed test procedures to determine performance efficiency of equipment.
  - 11. List of all electrical relay settings including alarm and contact settings.

## SECTION 01300 - CONTRACTOR SUBMITTALS

- B. The CONTRACTOR shall furnish to the ENGINEER 5 identical sets of technical manuals. Each set shall consist of one or more volumes, each of which shall be bound in a standard size, 3-ring, loose-leaf vinyl plastic hard cover binder suitable for bookshelf storage. Binder ring size shall not exceed 2.5 inches. A table of contents shall be provided which indicates all equipment in the technical manuals.
- C. All technical manuals shall be submitted in final form to the ENGINEER not later than the 75 percent of construction completion date. All discrepancies found by the ENGINEER in the technical manuals shall be corrected by the CONTRACTOR within 30 days from the date of written notification by the ENGINEER.
- D. Incomplete or unacceptable technical manuals at the 75 percent construction completion point shall constitute sufficient justification to withhold payment for work completed beyond that period in accordance with Paragraph "Technical Manual Submittal" of Section 01700, "Project Closeout."

### 1.5 SPARE PARTS LIST SUBMITTAL

- A. The CONTRACTOR shall furnish to the ENGINEER 5 identical sets of spare parts information for all mechanical, electrical, and instrumentation equipment. The spare parts list shall include the current list price of each spare part. The spare parts list shall be limited to those spare parts which each manufacturer recommends be maintained by the OWNER in inventory at the plant site. Each manufacturer or supplier shall indicate the name, address, and telephone number of its nearest outlet of spare parts to facilitate the OWNER in ordering. The CONTRACTOR shall cross-reference all spare parts lists to the equipment numbers designated in the Contract Documents. The spare parts lists shall be bound in standard size, 3-ring, loose leaf, vinyl plastic hard cover binders suitable for bookshelf storage. Binder ring size shall not exceed 2.5 inches.

### 1.6 RECORD DRAWINGS SUBMITTALS

- A. The CONTRACTOR shall keep and maintain, at the job site, one record set of Drawings. On these, it shall mark all Project conditions, locations, configurations, and any other changes or deviations which may vary from the details represented on the original contract Drawings, including buried or concealed construction and utility features which are revealed during the course of construction. Special attention shall be given to recording the horizontal and vertical location of all buried utilities that differ from the locations indicated, or which were not indicated on the contract Drawings. Said record drawings shall be supplemented by any detailed sketches as necessary or directed to indicate, fully, the WORK as actually constructed. These master record drawings, of the CONTRACTOR's representation of as-built conditions, including all revisions made necessary by addenda, change orders, and the like shall be maintained up-to-date during the progress of the WORK.
- B. In the case of those drawings which depict the detail requirement for equipment to be assembled and wired in the factory, such as motor control centers and the like, the record drawings shall be updated by indicating those portions which are superseded by Change Order Drawings or final Shop Drawings, and by including appropriate reference information describing the Change Orders by number and the Shop Drawings by manufacturer, drawing, and revision numbers.

## SECTION 01300 - CONTRACTOR SUBMITTALS

- C. Record Drawings shall be accessible to the ENGINEER at all times during the construction period and shall be delivered to the ENGINEER on the 20<sup>th</sup> working day of every third month after the month in which the Notice to Proceed is given as well as upon completion of the WORK.
- D. Final payment will not be acted upon until the CONTRACTOR-prepared record drawings have been delivered to the ENGINEER.

### 1.7 PROGRESS SCHEDULES

- A. The progress schedule shall be in Bar Chart format and shall utilize a Critical Path Method (CPM). The Contractor shall submit monthly updates of the progress schedule to the Engineer for approval.
- B. The progress schedule shall show the order in which the CONTRACTOR proposes to carry out the WORK and the contemplated date on which the CONTRACTOR and their subcontractors will start and finish each of the salient features of the work, including any scheduled periods of shutdown. The schedule shall also indicate any anticipated periods of multiple-shift work.
- C. Upon substantial changes to the CONTRACTOR's progress schedule of work or upon request of the ENGINEER, the CONTRACTOR shall submit a revised progress schedule(s) in the form required. Such revised schedule(s) shall conform with the Contract Time and take into account delays which may have been encountered in the performance of the WORK, identifying any delays or time required to implement changed conditions. In submitting a revised schedule, the CONTRACTOR shall state specifically the reason for the revision and the adjustments made in his schedule or methods of operation to ensure the completion of all the WORK within the Contract Time.

### 1.8 PROPOSED SUBSTITUTES OR "OR-EQUAL" ITEM SUBMITTAL

- A. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the naming of the item is intended to establish the type, function, and quality required. If the name is followed by the words "or-equal" indicating that a substitution is permitted, materials or equipment of other suppliers may be accepted by the ENGINEER if sufficient information is submitted by the CONTRACTOR to allow the ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named, subject to the following requirements:
  - 1. The burden of proof as to the type, function, and quality of any such substitute material or equipment shall be upon the CONTRACTOR.
  - 2. The ENGINEER will be the sole judge as to the type, function, and quality of any such substitute material or equipment and the ENGINEER's decision shall be final.
  - 3. The ENGINEER may require the CONTRACTOR, to furnish at the CONTRACTOR's expense, additional data about the proposed substitute.

## SECTION 01300 - CONTRACTOR SUBMITTALS

4. The OWNER may require the CONTRACTOR to furnish at the CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.
  5. Acceptance by the ENGINEER of a substitute item proposed by the CONTRACTOR shall not relieve the CONTRACTOR of the responsibility for full compliance with the Contract documents and for adequacy of the substitute item.
  6. The CONTRACTOR shall be responsible for resultant changes and all additional costs which the accepted substitution requires in the CONTRACTOR's work, the work of its subcontractors and of other contractors, and shall effect such changes without cost to the OWNER. This shall include the cost for redesign and claims of other contractor affected by the resulting change.
- B. The procedure for review by the ENGINEER will include the following:
1. If the CONTRACTOR wishes to furnish or use a substitute item of material or equipment, the CONTRACTOR shall make written application to the ENGINEER on the "Substitution Request Form" for acceptance thereof.
  2. Unless otherwise provided by law or authorized in writing by the ENGINEER, the "Substitution Request Form(s)" shall be submitted within the 21-day period after Notice of Award.
  3. Wherever a proposed substitute material or equipment has not been submitted within said 21-day period, or wherever the submission of a proposed substitute material or equipment has been judged to be unacceptable by the ENGINEER, the CONTRACTOR shall provide material or equipment named in the Contract Documents.
  4. The CONTRACTOR shall certify that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified, and be suited to the same use as that specified.
  5. The ENGINEER will be allowed a reasonable time within which to evaluate each proposed substitute. In no case will this reasonable time period be less than 30 days.
  6. As applicable, no shop drawing submittals will be made for a substitute item nor will any substitute item be ordered, installed, or utilized without the ENGINEER's prior written acceptance of the CONTRACTOR's "Substitution Request Form" which will be evidenced by a Change Order.
  7. The ENGINEER will record the time required by the ENGINEER in evaluating substitutions proposed by the CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not the ENGINEER accepts a proposed substitute, the CONTRACTOR shall reimburse the OWNER for the charges of the ENGINEER for evaluating each proposed substitute.
- C. The CONTRACTOR's application using the "Substitution Request Forms" shall contain the following statements and/or information which shall be considered by the ENGINEER in evaluating the proposed substitution:
1. The evaluation and acceptance of the proposed substitute will not prejudice the CONTRACTOR's achievement of substantial completion on time.

## **SECTION 01300 - CONTRACTOR SUBMITTALS**

2. Whether or not acceptance of the substitute for use in the WORK will require a change in any of the Contract Documents to adopt the design to the proposed substitute.
3. Whether or not incorporation or use of the substitute in connection with the WORK is subject to payment of any license fee or royalty.
4. All variations of the proposed substitute for that specified will be identified.
5. Available maintenance, repair, and replacement service and its estimated cost will be indicated.
6. Itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including cost of redesign and claims of other contractors affected by the resulting change.

### **1.9 MATERIAL CERTIFICATON SUBMITTAL**

- A. The ENGINEER may permit the use, prior to sampling, inspection and testing, of certain materials or assemblies when accompanied by manufacturer's material certifications stating that such materials or assemblies fully comply with the requirements of the Contract. The certification shall be signed by the manufacturer, and will specifically reference the material's compliance with the AASHTO, ASTM and/or CBJ Standards specified in the applicable Contract Documents.
- B. Material Certifications shall be submitted to the engineer prior to incorporating the item into the WORK.
- C. Materials or assemblies used on the basis of material certifications may be sampled, inspected and/or tested at any time, and if found not in conformity with these Specifications, will be subject to rejection whether in place or not.

**PART 2 - PRODUCTS (not used)**

**PART 3 - EXECUTION (not used)**

**(SUBSTITUTION REQUEST FORM – next page)**

**SECTION 01300 - CONTRACTOR SUBMITTALS**

**City and Borough of Wrangell  
SUBSTITUTION REQUEST FORM**

TO: \_\_\_\_\_ Project: \_\_\_\_\_  
Contract No. \_\_\_\_\_  
OWNER: \_\_\_\_\_

**SPECIFIED ITEM:**

Section	Page	Paragraph	Description
---------	------	-----------	-------------

The undersigned requests consideration of the following:

**PROPOSED SUBSTITUTION:** \_\_\_\_\_

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request. Applicable portions of the data are clearly identified.

The undersigned states that the following paragraphs, unless modified on attachments are correct:

1. The proposed substitution does not affect dimensions shown on Drawings and will not require a change in any of the Contract Documents.
2. The undersigned will pay for changes to the design, including engineering design, detailing, and construction costs caused by the requested substitution which is estimated to be \$ \_\_\_\_\_.
3. The proposed substitution will have no adverse affect on other contractors, the construction schedule (specifically the date of substantial completion), or specified warranty requirements.
4. Maintenance and service parts will be locally available for the proposed substitution.
5. The incorporation or use of the substitute in connection with the WORK is not subject to payment of any license fee or royalty.

The undersigned further states that the function, appearance, and quality of the Proposed Substitution are equivalent or superior to the Specified item.

Submitted by CONTRACTOR: \_\_\_\_\_ Reviewed by ARCHITECT/ENGINEER \_\_\_\_\_  
Signature \_\_\_\_\_  Accepted  Accepted as Noted  
Firm: \_\_\_\_\_  Not Accepted  Received Too Late  
By: \_\_\_\_\_ Date: \_\_\_\_\_  
Title: \_\_\_\_\_ Telephone: \_\_\_\_\_  
Date: \_\_\_\_\_  
Attachments: \_\_\_\_\_

**END OF SECTION**

## SECTION 01400 - QUALITY CONTROL

### PART 1 - GENERAL

#### 1.1 DEFINITION

- A. Specific quality control requirements for the WORK are indicated throughout the Contract Documents. The requirements of this Section are primarily related to performance of the WORK beyond furnishing of manufactured products. The term "Quality Control" includes inspection, sampling and testing, and associated requirements.

#### 1.2 INSPECTION AT PLACE OF MANUFACTURE

- A. Unless otherwise indicated, all products, materials, and equipment shall be subject to inspection by the ENGINEER at the place of manufacture.
- B. The presence of the ENGINEER at the place of manufacturer, however, shall not relieve the CONTRACTOR of the responsibility for furnishing products, materials, and equipment which comply with all requirements of the Contract Documents. Compliance is a duty of the CONTRACTOR, and said duty shall not be avoided by any act or omission on the part of the ENGINEER.

#### 1.3 SAMPLING AND TESTING

- A. Unless otherwise indicated, all sampling and testing shall be in accordance with the methods prescribed in the current standards of the ASTM, ATM, and AASHTO as applicable to the class and nature of the article or materials considered; however, the OWNER reserves the right to use any generally-accepted system of sampling and testing which, in the opinion of the ENGINEER will insure the OWNER that the quality of the workmanship is in full accord with the Contract Documents.
- B. Any waiver by the OWNER of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial WORK, shall not be construed as a waiver of any requirements of the Contract Documents.
- C. Notwithstanding the existence of such waiver, the ENGINEER reserves the right to make independent investigations and tests, and failure of any portion of the WORK to meet any of the requirements of the Contract Documents, shall be reasonable cause for the ENGINEER to require the removal or correction and reconstruction of any such work in accordance with the General Conditions.

#### 1.4 INSPECTION AND TESTING LABORATORY SERVICE

- A. Inspection and testing laboratory service shall comply with the following:
  - 1. OWNER will appoint, employ, and pay for services of an independent firm to perform inspection and testing or will perform inspection and testing itself unless

## SECTION 01400 - QUALITY CONTROL

specific quality control testing is required by the CONTRACTOR under these specifications.

2. The ENGINEER will perform inspections as specified in individual specification sections, unless specified otherwise.
3. Reports will be submitted by the independent firm to the ENGINEER in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
4. The CONTRACTOR shall cooperate with the ENGINEER or independent firm and furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
5. The CONTRACTOR shall notify ENGINEER 24 hours prior to the expected time for operations requiring inspection and laboratory testing services.
6. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the ENGINEER. The CONTRACTOR shall bear all costs from such retesting at no additional cost to the OWNER.
7. For samples and tests required for CONTRACTOR'S use, the CONTRACTOR shall make arrangements with an independent firm for payment and scheduling of testing. The cost of sampling and testing for the CONTRACTOR'S use shall be included in the Contract Price.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Inspection: The CONTRACTOR shall inspect materials or equipment upon the arrival on the job site and immediately prior to installation, and reject damaged and defective items.
- B. Measurements: The CONTRACTOR shall verify measurements and dimensions of the WORK, as an integral step of starting each installation.
- C. Manufacturer's Instructions: Where installations include manufactured products, the CONTRACTOR shall comply with manufacturer's applicable instructions and recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in Contract Documents.

**END OF SECTION**



## **SECTION 01500 – FIELD OFFICE**

### **PART 1 - GENERAL**

#### **1.1 DESCRIPTION**

- A. This Work shall consist of furnishing and maintaining field office facilities for use by the Engineer and his Construction Inspectors for the duration of the project. Maintenance shall be adequate to preserve the utility of the facility and shall include heat, electricity, water, sanitary and security facilities. All facilities shall remain the property of the Contractor upon completion of the work.

### **PART 2 - PRODUCTS**

#### **2.1 FIELD OFFICE**

- A. The Contractor shall furnish and maintain a suitable office for use by the Engineer for the duration of the construction work. Such office may be a part of the Contractor's building, in which cases it shall be partitioned off from the balance of the structure and it shall be provided with a separate outside door equipped with a lock. A suitable stove or other heating device shall be provided with necessary fuel. Adequate electrical lighting and 120-volt, 60-cycle power shall be furnished. The office shall have at least 160 square feet of floor space and shall have at least 20 square feet of window area, along with adequate ventilation. One (1) standard desk, with a top measuring 30 inches by 60 inches with drawers, two (2) lay tables with top measuring 30 inches by 96 inches and at least 16 feet of 12 inch wide shelf shall be provided by the Contractor. The field office shall be equipped with sanitary facilities or an exterior portable sanitary restroom. In the event that the field office is located on the job site the sanitary facility requirement maybe omitted.

### **PART 3 – EXECUTION**

#### **3.1 INSTALLATION**

- A. The field office shall be available for occupancy one week prior to commencing work on the project to one week after final inspection.

**END OF SECTION**

## **SECTION 01505 - MOBILIZATION**

### **PART 1 - GENERAL**

#### **1.1 GENERAL**

- A. Mobilization shall include obtaining permits; moving onto the site of all plant and equipment; furnishing and erecting plants, temporary buildings, and other construction facilities; and implementing security requirements; all as required for the proper performance and completion of the WORK. Mobilization shall include the following principal items:
1. Moving on to the site of all CONTRACTOR's plant and equipment required for operations.
  2. Providing all on-site communication facilities, including radios and cellular phones.
  3. Obtaining all required permits other than those provided in the Contract Documents.
  4. Having all OSHA required notices and establishment of safety programs.
  5. Having the CONTRACTOR's superintendent at the job site full time.
  6. Submitting initial submittals.

#### **1.2 PAYMENT FOR MOBILIZATION**

- A. The CONTRACTOR's attention is directed to the condition that no payment for Mobilization, or any part thereof, will be approved for payment under the contract until all Mobilization items listed above have been completed as specified.
- B. As soon as practicable after receipt of the Notice to Proceed, the CONTRACTOR shall submit a breakdown to the ENGINEER for approval, which shall show the estimated value of each major component of Mobilization. When approved by the ENGINEER, the breakdown will be the basis for initial progress payments in which Mobilization is included.

### **PART 2 – PRODUCTS (Not Used)**

### **PART 3 – EXECUTION (Not Used)**

**END OF SECTION**

## **SECTION 01520 - SECURITY**

### **PART 1 - GENERAL**

#### **1.1 SECURITY PROGRAM**

A. The CONTRACTOR shall:

1. Protect WORK, existing premises and OWNER's operations from theft, vandalism, and unauthorized entry.
2. Coordinate security with OWNER's operations at job mobilization.
3. Maintain program throughout construction period until OWNER's occupancy.

#### **1.2 ENTRY CONTROL**

A. The CONTRACTOR shall:

1. Control entry of persons and vehicles onto Project construction site and existing facilities.
2. Allow entry on the construction site only to authorized persons with proper identification.
3. Coordinate access of OWNER's personnel to site in coordination with CONTRACTOR's security forces.

B. OWNER will control entrance of persons and vehicles related to OWNER's operations.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

## SECTION 01530 - PROTECTION AND RESTORATION OF EXISTING FACILITIES

### PART 1 - GENERAL

#### 1.1 GENERAL

- A. The CONTRACTOR shall protect all existing utilities and improvements not designated for removal and shall restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the Contract Documents.
- B. All utility locates shall be the responsibility of the CONTRACTOR. CALL DIAL BEFORE YOU DIG AT 874-3904 for water and sanitary sewer locates and 907-874-3602 for electrical underground utilities within the WORK limits prior to any work.
- C. The CONTRACTOR shall verify the exact locations and depths of all utilities and the CONTRACTOR shall make exploratory excavations of all utilities that may interfere with the WORK. All such exploratory excavations shall be performed as soon as practicable after award of the contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the CONTRACTOR's WORK. Any utility or service in conflict with the WORK will be reburied by the CONTRACTOR prior beginning the WORK to avoid damage.
- D. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility.

#### 1.2 RIGHTS-OF-WAY

- A. The CONTRACTOR shall not do any work that would affect any oil, gas, sewer, or water pipeline; any telephone, cable television, telegraph, or electric transmission line; any fence; or any other structure, nor shall the CONTRACTOR enter upon the rights-of-way involved until notified by the ENGINEER that the OWNER has secured authority therefor from the proper party. After authority has been obtained, the CONTRACTOR shall give said party due notice of its intention to begin work, if required by said party, and shall remove, shore, support or otherwise protect such pipeline, transmission line, ditch, fence, or structure or replace the same. When two or more contracts are being executed at one time on the same or adjacent land in such manner that work on one contract may interfere with that on another, the OWNER shall determine the sequence and order of the WORK. When the territory of one contract is the necessary or convenient means of access for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the OWNER to the CONTRACTOR so desiring, to the extent, amount, in the manner, and at the times permitted.
- B. No such decision as to the method or time of conducting the WORK or the use of territory shall be made the basis of any claim for delay or damage, except as provided for temporary suspension of the WORK in Article 15 of the General Conditions of the contract.

#### 1.3 PROTECTION OF SURVEY MONUMENTS, STREET AND/OR ROADWAY MARKERS

- A. The CONTRACTOR shall not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper authorization. No pavement breaking or excavation shall be started until all survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced. All survey monuments, markers or points disturbed by the CONTRACTOR shall be accurately re-established, at the CONTRACTOR's expense unless provided for

## **SECTION 01530 - PROTECTION AND RESTORATION OF EXISTING FACILITIES**

elsewhere in the contract, after all street or roadway resurfacing has been completed. Re-establishment of all survey monuments shall be by a Registered Alaskan Land Surveyor.

### **1.4 RESTORATION OF PAVEMENT**

- A. General: All paved areas, including asphalt concrete berms, cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit. All temporary and permanent pavement shall conform to the requirements of the affected pavement owner. All pavements which are subject to partial removal shall be neatly saw cut in straight lines.
- B. Temporary Resurfacing: Wherever required by the public authorities having jurisdiction, the CONTRACTOR shall place temporary surfacing promptly after backfilling and shall maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements.
- C. Permanent Resurfacing: In order to obtain a satisfactory junction with adjacent surfaces, the CONTRACTOR shall saw cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.
- D. Restoration of Sidewalks or Private Driveways: Wherever sidewalks or private roads have been removed for purposes of construction, the CONTRACTOR shall place suitable temporary sidewalks or roadways promptly after backfilling and shall maintain them in satisfactory condition for the period of time fixed by the authorities having jurisdiction over the affected portions before proceeding with the final restoration or, if no such period of times is so fixed, the CONTRACTOR shall maintain said temporary sidewalks or roadways until the final restoration thereof has been made.

### **1.5 EXISTING UTILITIES AND IMPROVEMENTS**

- A. General: The CONTRACTOR shall protect all Underground Utilities and other improvements which may be impaired during construction operations. It shall be the CONTRACTOR's responsibility to ascertain the actual location of all existing utilities and other improvements that will be encountered in its construction operations, and to see that such utilities or other improvements are adequately protected from damage due to such operations. The CONTRACTOR shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.
- B. Utilities to be Moved: In case it shall be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will, upon request of the CONTRACTOR, be notified by the OWNER to move such property within a specified reasonable time. When utility lines that are to be removed are encountered within the area of operations, the CONTRACTOR shall notify the ENGINEER a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.
- C. Where the proper completion of the WORK requires the temporary or permanent removal and/or relocation of an existing utility or other improvement which is indicated, the

## **SECTION 01530 - PROTECTION AND RESTORATION OF EXISTING FACILITIES**

CONTRACTOR shall remove and, without unnecessary delay, temporarily replace or relocate such utility or improvement in a manner satisfactory to the ENGINEER and the owner of the facility. In all cases of such temporary removal or relocation, restoration to former location shall be accomplished by the CONTRACTOR in a manner that will restore or replace the utility or improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal.

- D. **OWNER's Right of Access:** The right is reserved to the OWNER and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the WORK of this contract.
- E. **Underground Utilities Indicated:** Existing utility lines that are indicated or the locations of which are made known to the CONTRACTOR prior to excavation and that are to be retained, and all utility lines that are constructed during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired or replaced by the CONTRACTOR.
- F. **Underground Utilities Not Indicated:** In the event that the CONTRACTOR damages any existing utility lines that are not indicated or the locations of which are not made known to the CONTRACTOR prior to excavation, a written report thereof shall be made immediately to the ENGINEER. If directed by the ENGINEER, repairs shall be made by the CONTRACTOR under the provisions for changes and extra work contained in Articles 10, 11, and 12 of the General Conditions.
- G. **All costs of locating, repairing damage not due to failure of the CONTRACTOR to exercise reasonable care, and removing or relocating such utility facilities not shown in the Contract Documents with reasonable accuracy, and for equipment on the project which was actually working on that portion of the WORK which was interrupted or idled by removal or relocation of such utility facilities, and which was necessarily idled during such work will be paid for as extra work in accordance with the provisions of Articles 10, 11, and 12 of the General Conditions.**
- H. **Approval of Repairs:** All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility or improvement owner before being concealed by backfill or other work.
- I. **Maintaining in Service:** All oil and gasoline pipelines, power, and telephone, cable television or the communication cable ducts, gas and water mains, irrigation lines, sewer lines, storm drain lines, poles, and overhead power and communication wires and cables encountered along the line of the WORK shall remain continuously in service during all the operations under the Contract, unless other arrangements satisfactory to the ENGINEER are made with the owner of said pipelines, duct, main, irrigation line, sewer, storm drain, pole, or wire or cable. The CONTRACTOR shall be responsible for and shall repair all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

### **1.6 TREES WITHIN STREET RIGHTS-OF-WAY AND PROJECT LIMITS**

- A. **General:** The CONTRACTOR shall exercise all necessary precautions so as not to damage or destroy any trees or shrubs, including those lying within street rights-of-way and project limits, and shall not trim or remove any trees unless such trees have been approved for trimming or removal by the jurisdictional agency or OWNER. All existing trees and shrubs which are damaged during construction shall be trimmed or replaced by

## SECTION 01530 - PROTECTION AND RESTORATION OF EXISTING FACILITIES

the CONTRACTOR or a certified tree company under permit from the jurisdictional agency and/or the OWNER. Tree trimming and replacement shall be accomplished in accordance with the following paragraphs.

- B. Trimming: Symmetry of the tree shall be preserved; no stubs or splits or torn branches left; clean cuts shall be made close to the trunk or large branch. Spikes shall not be used for climbing live trees. All cuts over 1-1/2 inches in diameter shall be coated with an asphaltic emulsion material.
- C. Replacement: The CONTRACTOR shall immediately notify the jurisdictional agency and/or the OWNER if any tree is damaged by the CONTRACTOR's operations. If, in the opinion of said agency or the OWNER, the damage is such that replacement is necessary, the CONTRACTOR shall replace the tree at its own expense. The tree shall be of a like size and variety as the tree damaged, or, the CONTRACTOR shall pay to the owner of said tree a compensatory payment acceptable to the tree owner, subject to the approval of the jurisdictional agency or OWNER.

### 1.7 PROTECTION OF EXISTING STRUCTURES

- A. Compaction Equipment and Operations: The CONTRACTOR shall restrict its compaction operations as necessary to assure no damage occurs to adjacent buildings. This may require the use of smaller compaction equipment than is usually employed for trench backfill and roadway embankment compaction operations when in the vicinity of buildings sensitive to vibrating or other impact-type activities. It shall be the CONTRACTOR's responsibility to determine in which areas of the project the compaction operations must be restricted, to avoid damage to existing buildings. The CONTRACTOR is advised that some structures on the project, especially those founded on steep or unstable ground, and are especially sensitive to vibrations caused by heavy construction equipment. The foregoing restrictions on the size of, and magnitude of impact energy exerted by, compaction equipment will in no way relieve the CONTRACTOR from the compaction requirements as specified in other Sections of the contract.
- B. The CONTRACTOR shall notify all affected businesses and other residents in advance of any operations that will cause vibrations that may damage belongings within the buildings. All property damage caused by the CONTRACTOR's operations shall be repaired or replaced at CONTRACTOR's expense.

**PART 2 PRODUCTS – (Not Used)**

**PART 3 EXECUTION - (Not used)**

**END OF SECTION**

## SECTION 01550 - SITE ACCESS AND STORAGE

### PART 1 - GENERAL

- 1.1 HIGHWAY LIMITATIONS. The CONTRACTOR shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the WORK. It shall be the CONTRACTOR's responsibility to construct and maintain any haul roads required for its construction operations.
- 1.2 TEMPORARY CROSSINGS
- A. General: Continuous, unobstructed, safe, and adequate pedestrian access shall be provided to the Boat Yard, fire hydrants, commercial and industrial establishments, private residences, churches, schools, parking lots, service stations, motels, fire and police stations, and hospitals. Safe and adequate public transportation stops and pedestrian crossings at intervals not exceeding 200 feet shall be provided. The CONTRACTOR shall cooperate with parties involved in the delivery of mail and removal of trash and garbage so as to maintain existing schedules for such services. Vehicular access to residential driveways shall be maintained to the property line except when necessary construction precludes such access for reasonable periods of time, as approved by the ENGINEER.
- B. Temporary Bridges: Wherever necessary, the CONTRACTOR shall provide suitable temporary bridges or steel plates over unfilled excavations, except in such cases as the CONTRACTOR shall secure the written consent of the individuals or authorities concerned to omit such temporary bridges or steel plates, which written consent shall be delivered to the ENGINEER prior to excavation. All such bridges or steel plates shall be maintained in service until access is provided across the backfilled excavation. Temporary bridges or steel plates for street and highway crossing shall conform to the requirements of the authority having jurisdiction in each case, and the CONTRACTOR shall adopt designs furnished by said authority for such bridges or steel plates, or shall submit designs to said authority for approval, as may be required.
- 1.3 MAINTENANCE OF TRAFFIC
- A. General: Unless otherwise provided, the roadway undergoing improvements shall be kept open to all traffic by the CONTRACTOR. Nothing herein shall be construed to entitle the CONTRACTOR to the exclusive use of any public street, alleyway, or parking area during the performance of the WORK hereunder, and it shall so conduct its operations as not to interfere unnecessarily with the authorized work of utility companies or other agencies in such streets, alleyways, or parking areas. The CONTRACTOR shall provide unimpeded access through the Project limits for emergency vehicles and make every effort to provide minimum delay to United States Postal Service vehicles and garbage collection vehicles.
- B. The CONTRACTOR shall submit three (3) copies of a traffic control plan to the ENGINEER for approval a minimum of two (2) weeks prior to construction. The ENGINEER reserves the right to observe these traffic control plans in use and to make any changes as field conditions warrant. Any changes shall supersede these plans and be done solely at the CONTRACTOR's expense.
- C. No street shall be closed to the public without first obtaining permission of the ENGINEER and proper governmental authority. Where so provided on the plans or otherwise approved by the ENGINEER, the CONTRACTOR may by-pass traffic over a detour route. When no longer required, the detour shall be removed and the approached obliterated.



## SECTION 01550 - SITE ACCESS AND STORAGE

- D. Where excavation is being performed in primary streets or highways, one lane in each direction shall be kept open to traffic at all times unless otherwise indicated. Toe boards shall be provided to retain excavated material if required by the ENGINEER or the agency having jurisdiction over the street or highway. Fire hydrants on or adjacent to the WORK shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the CONTRACTOR to assure the use of sidewalks and the proper functioning of all gutters, storm drain inlets, and other drainage facilities.
- E. The CONTRACTOR's equipment shall stop at all points of intersection with the traveling public unless satisfactory traffic control measures, approved in writing by the ENGINEER, are installed and maintained at CONTRACTOR's expense.
- F. When the CONTRACTOR is required to maintain traffic through grading, roadway excavation and embankment areas, the construction shall be conducted in such a manner as to provide a reasonably smooth and even surface satisfactory for use by public traffic at all times. The surface of the roadbed shall be properly crowned for drainage. In advance of other grading operations, sufficient fill shall be placed at culverts and bridges to permit traffic to cross unimpeded. Part width construction techniques shall be employed when the traffic is routed through roadway cuts or over embankments under construction. The material shall be excavated or placed in layers and the construction activities shall be alternated from one side to the other, with traffic routed over the side opposite the one under construction.
- G. During the removal and laying of culvert pipe, a maximum time of one hour of road closure may be permitted, providing the removal and laying of the culvert pipe cannot be completed for one-half width of the roadway and provided that a detour cannot be constructed around the culvert being laid. Closure shall be scheduled so as not to delay buses and peak hour traffic. The CONTRACTOR shall post, at the site of the closure within view of the waiting public traffic, the time the closure started and the time the road will again be open to traffic. The CONTRACTOR shall notify the Fire and Police Departments of such closures prior to commencement of work.
- H. At intervals of 48 hours and 24 hours prior to start up of construction operations, and at weekly intervals during the construction period, the CONTRACTOR shall advertise on the local newspaper, Airport, and at City Hall the precise location, time of commencement, and proposed completion date of the WORK scheduled for the following week which will require detouring or otherwise effect public traffic. Detours shall be described in sufficient detail to efficiently inform the traveling public of the modified traffic pattern. The cost of these advertisements shall be considered incidental to other contract bid items. The CONTRACTOR will notify the property owners 24 hours prior to commencement of WORK.
- I. When, in the opinion of the ENGINEER, conditions are such that the safety and/or convenience of the traveling public is adversely affected, the CONTRACTOR will be immediately notified in writing. The notice will state the defect(s) and the corrective action(s) required. In the event that the CONTRACTOR neglects to take immediate corrective action, the ENGINEER may suspend all work on the project until satisfactory corrective action is performed. In the event the CONTRACTOR does not take corrective action within 24 hours, the ENGINEER may order such work as deemed necessary for public convince and safety accomplished by outside forces. The cost of this work shall be deducted from any monies due or that may become due under the terms or the contract.

## SECTION 01550 - SITE ACCESS AND STORAGE

- J. The CONTRACTOR shall bear all expense of maintaining the traffic over the section of road undergoing improvement, including dust control and snow plowing, and of constructing and maintaining such approaches, crossings, intersections, and other features as may be necessary, without direct compensation, except as provided below:
1. Special Detours. When the proposal contains a bid item for detours, the payment for such item shall cover all cost of constructing and maintaining such detour or detours, including the construction of any and all temporary bridges and accessory features and the removal of the same, and obliteration of the detour road. Right-of-way for temporary highways or bridges will be furnished by the OWNER.
  2. Maintenance of Traffic During Suspension of WORK. The CONTRACTOR shall make passable and shall open to traffic such portions of the Project and temporary roadways as may be agreed upon between the CONTRACTOR and the ENGINEER for the temporary accommodation of necessary traffic during the anticipated period of suspension. If the suspension is seasonal (winter shutdown), thereafter, and until an issuance of an order for the resumption of construction operations, the maintenance of the temporary route of line of travel agreed upon will be the responsibility of the OWNER. Prior to the OWNER accepting the Project for winter shutdown, the CONTRACTOR shall do all work necessary to provide a roadway surface and subgrade that will not require the OWNER to perform additional maintenance work during the shutdown period, except for purpose of snow removal. If the WORK is suspended due to unfavorable weather, failure of the CONTRACTOR to correct conditions unsafe for the workers or the general public, failure to carry out provisions of the contract, or for failure to carry out orders of the ENGINEER, all costs for maintenance of traffic during the suspended period shall be borne by the CONTRACTOR. When WORK is resumed, the CONTRACTOR shall replace or renew any WORK or materials lost or damaged because of temporary use of the project; shall remove, to the extent directed by the ENGINEER, any WORK or materials used in the temporary maintenance; and shall complete the Project as though its prosecution had been continuous and without interference.
- K. Traffic Control: All locations requiring redirection or stopping of the traveling public shall be properly signed and/or flagged by the CONTRACTOR. For the protection of traffic in public or private streets and ways, the CONTRACTOR shall provide, flaggers and provide, place, and maintain all necessary barricades, traffic cones, warning signs, lights, and other safety devices in accordance with the requirements of the "Manual of Uniform Traffic Control Devices, Part VI - Traffic Controls for Street and Highway Construction and Maintenance Operations," (MUTCD) published by U.S. Department of Transportation, Federal Highway Administration (ANSI D6.1) with the current State of Alaska supplements.
- L. The CONTRACTOR shall take all necessary precautions for the protection of the WORK and the safety of the public. All barricades and obstructions shall be illuminated at night, and all lights shall be kept burning from sunset until sunrise. The CONTRACTOR shall station such guards or flaggers and shall conform to such special safety regulations relating to traffic control as may be required by the public authorities within their respective jurisdictions. All signs, signals, and barricades shall conform to the requirements of Subpart G, Part 1926, of the OSHA Safety and Health Standards for Construction.

## SECTION 01550 - SITE ACCESS AND STORAGE

- M. Special pedestrian detours are often necessary in areas adjacent to new construction or demolition of existing structures. The ENGINEER shall determine when walkways are required. Plans for walkways must be approved by the ENGINEER.
- N. The CONTRACTOR shall remove traffic control devices when no longer needed, repair all damage caused by installation of the devices, and shall remove post settings and backfill the resulting holes to match grade.
- O. Temporary Street Closure: If closure of any street is required during construction, the CONTRACTOR shall apply in writing to the Borough Manager, CBW Public Works, DOT and any other jurisdictional agency at least 30 days in advance of the required closure and again at 48 hours. A Detour and Traffic Control Plan shall accompany the application.
- P. The CONTRACTOR shall notify the Police and Fire Departments and any other affected agency of all planned street closures. Notification shall consist of giving the time of commencement and proposed date of completion of work and names of street, schedule of operations, and routes of detours. Such notification shall be given at least 48 hours before such closure is to take effect.
- Q. Temporary Driveway Closure: The CONTRACTOR shall maintain access to all residential, commercial and street approaches. Any temporary closures shall require prior approval by the ENGINEER. The CONTRACTOR shall notify the owner or occupant (if not owner-occupied) of the closure of the driveways to be closed more than one (1) eight-hour work day at least three (3) working days prior to the closure. The CONTRACTOR shall minimize the inconvenience and minimize the time period that the driveways will be closed. The CONTRACTOR shall fully explain to the owner/occupant how long the work will take and when closure is to start.
- R. On-Site Cellular Phones: The CONTRACTOR shall maintain one active cellular phone at the project site at all times with the phone number provided to the Wrangell Fire, Police and Engineering Departments. The cellular phone shall be carried by the person in charge of the field operations. The CONTRACTOR shall provide and allow the use of the CONTRACTOR's radio frequency to facilitate communication between the CONTRACTOR and the ENGINEER.

### 1.4 CONTRACTOR'S WORK AND STORAGE AREA

- A. The CONTRACTOR shall make its own arrangements for any necessary off-site storage or shop areas necessary for the proper execution of the WORK.
- B. Should the CONTRACTOR find it necessary to use any additional land for its camp or for other purposes during the construction of the WORK, it shall provide for the use of such lands at its own expense.
- C. The CONTRACTOR shall construct and use a separate storage area for hazardous materials used in constructing the WORK.
  - 1. For the purpose of this paragraph, hazardous materials to be stored in the separate area are all products labeled with any of the following terms: **Warning, Caution, Poisonous, Toxic, Flammable, Corrosive, Reactive, or Explosive.** In addition, whether or not so labeled, the following materials shall be stored in the separate area: diesel fuel, gasoline, new and used motor oil, hydraulic fluid, cement, paints and paint thinners, two-part epoxy coatings, sealants, asphaltic

## **SECTION 01550 - SITE ACCESS AND STORAGE**

products, glues, solvents, wood preservatives, sand blast materials, and spill absorbent.

2. The CONTRACTOR shall develop and submit to the ENGINEER a plan for storing and disposing of the materials above.
3. The CONTRACTOR shall obtain and submit to the ENGINEER a single EPA number for wastes generated at the site.
4. The separate storage area shall meet all the requirements of all authorities having jurisdiction over the storage of hazardous materials.
5. The separate storage area shall be inspected by the ENGINEER prior to construction of the area, upon completion of construction of the area, and upon cleanup and removal of the area.
6. All hazardous materials which are delivered in containers shall be stored in the original containers until use. Hazardous materials which are delivered in bulk shall be stored in containers which meet the requirements of authorities having jurisdiction.

### **1.5 PARKING**

- A. The CONTRACTOR shall direct its employees to park in areas as directed by the ENGINEER.
- B. Traffic and parking areas shall be maintained in a sound condition, free of excavated material, construction equipment, mud, and construction materials. The CONTRACTOR shall repair breaks, potholes, low areas which collect standing water, and other deficiencies.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

## SECTION 01560 - TEMPORARY ENVIRONMENTAL CONTROLS

### PART 1 - GENERAL

- 1.1 DUST ABATEMENT. The CONTRACTOR shall furnish all labor, equipment, and means required and shall carry out effective measures wherever and as often as necessary to prevent its operation from producing dust in amounts damaging to property, cultivated vegetation, or domestic animals, or causing a nuisance to persons living in or occupying buildings in the vicinity. The CONTRACTOR shall be responsible for any damage resulting from any dust originating from its operations. The dust abatement measures shall be continued until the CONTRACTOR is relieved of further responsibility by the ENGINEER.
- 1.2 RUBBISH CONTROL. During the progress of the WORK, the CONTRACTOR shall keep the site of the WORK and other areas used by it in a neat and clean condition, and free from any accumulation of rubbish. The CONTRACTOR shall dispose of all rubbish and waste materials of any nature occurring at the WORK site, and shall establish regular intervals of collection and disposal of such materials and waste. The CONTRACTOR shall also keep its haul roads free from dirt, rubbish, and unnecessary obstructions resulting from its operations. Disposal of all rubbish and surplus materials shall be off the site of construction in accordance with local codes and ordinances governing locations and methods of disposal, and in conformance with all applicable safety laws, and to the particular requirements of Part 1926 of the OSHA Safety and Health Standards for Construction.
- 1.3 SANITATION
- A. Toilet Facilities: Fixed or portable chemical toilets shall be provided wherever needed for the use of employees. Toilets at construction job sites shall conform to the requirements of Part 1926 of the OSHA Standards for Construction.
- B. Sanitary and Other Organic Wastes: The CONTRACTOR shall establish a regular daily collection of all sanitary and organic wastes. All wastes and refuse from sanitary facilities provided by the CONTRACTOR or organic material wastes from any other source related to the CONTRACTOR's operations shall be disposed of away from the site in a manner satisfactory to the ENGINEER and in accordance with all laws and regulations pertaining thereto.
- 1.4 CHEMICALS. All chemicals used during project construction or furnished for project operation, whether defoliant, soil sterilant, herbicide, pesticide, disinfectant, polymer, reactant or of other classification, shall show approval of either the U.S. Environmental Protection Agency or the U.S. Department of Agriculture. Use of all such chemicals and disposal of residues shall be in strict accordance with the printed instructions of the manufacturer. In addition, see the requirements set forth in paragraph 6.11 of the General Conditions.
- 1.5 CULTURAL RESOURCES
- A. The CONTRACTOR's attention is directed to the National Historic Preservation Act of 1966 (16 U.S.C. 470) and 36 CFR 800 which provides for the preservation of potential historical architectural, archaeological, or cultural resources (hereinafter called "cultural resources").
- B. The CONTRACTOR shall conform to the applicable requirements of the National Historic Preservation Act of 1966 as it relates to the preservation of cultural resources.

**SECTION 01560 - TEMPORARY ENVIRONMENTAL CONTROLS**

- C. In the event potential cultural resources are discovered during subsurface excavations at the site of construction, stop work immediately and notify the ENGINEER.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

## **SECTION 01570 - EROSION CONTROL**

### **PART 1 - GENERAL**

#### **1.1 THE REQUIREMENT**

- A. The CONTRACTOR shall provide for erosion control during construction. All sedimentation from on-site drainage shall be caught on-site.
- B. The WORK under this Section includes providing all labor, materials, tools and equipment necessary to construct and maintain erosion control works; including but not limited to, silt fences, settling ponds, hay or straw bale check dams, ditches, etc.
- C. The WORK also includes the CONTRACTOR preparing a Stormwater Pollution Prevention Plan (SWPPP) in accordance with current EPA guidelines and obtaining an NPDES permit from EPA for the Wrangell Marine Service Center – Concrete Paving Phase II. The CONTRACTOR shall file a Notice of Intent (NOI) with the EPA and provide a copy of the NOI to the DEC and City and Borough of Wrangell.

### **PART 2 - PRODUCTS**

- 2.1 MATERIALS. Materials shall be suitable for the intended use and perform effectively to control silt and surface erosion. All materials shall remain the property of the CONTRACTOR.

### **PART 3 - EXECUTION**

#### **3.1 GENERAL**

- A. The CONTRACTOR shall install temporary erosion control structures as necessary and/or as directed by the ENGINEER. They shall be maintained in effective operating condition at all times. Settling ponds and silt fences shall be cleaned whenever they have become half-filled with silt or debris, and other items shall be cleaned, repaired, or replaced as necessary.
- B. Temporary erosion control structures shall remain in place until replaced by permanent erosion control WORK, or until the ENGINEER approves their removal.
- C. All temporary erosion control WORK shall be incidental to the other items in the Contract. The CONTRACTOR shall be responsible for all permits required near streams and water bodies and, therefore, shall be responsible for the quality of the run-off water from the Project site and for any fine and penalties resulting from the construction operation.
- D. The CONTRACTOR shall submit an erosion control plan to the ENGINEER, prior to beginning any WORK at the Project site. No WORK at the Project site will be permitted until approval of this plan has been obtained from the governing agency or agencies.

**END OF SECTION**

## SECTION 01600 - MATERIALS AND EQUIPMENT

### PART 1 - GENERAL

#### 1.1 GENERAL

- A. The word "Products," as used herein, is defined to include purchased items for incorporation into the WORK, regardless of whether specifically purchased for project or taken from CONTRACTOR's stock of previously purchased products. The word "Materials," is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined, or otherwise fabricated, processed, installed, or applied to form units of work. The word "Equipment" is defined as products with operational parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, and other like items). Definitions in this paragraph are not intended to negate the meaning of other terms used in Contract Documents, including "specialties," "systems," "structure," "finishes," "accessories," "furnishings," special construction," and similar terms, which are self-explanatory and have recognized meanings in the construction industry.
- B. Neither "Products" nor "Materials" nor "Equipment" includes machinery and equipment used for preparation, fabrication, conveying and erection of the WORK.

#### 1.2 QUALITY ASSURANCE

- A. Source Limitations: To the greatest extent possible for each unit of WORK, the CONTRACTOR shall provide products, materials, or equipment of a singular generic kind from a single source.
- B. Compatibility of Options: Where more than one choice is available as options for CONTRACTOR's selection of a product, material, or equipment, the CONTRACTOR shall select an option which is compatible with other products, materials, or equipment already selected. Compatibility is a basic general requirement of product/material selections.

- 1.3 **PRODUCT DELIVERY/STORAGE/HANDLING.** The CONTRACTOR shall deliver, handle, and store products in accordance with manufacturer's written recommendations and by methods and means which will prevent damage, deterioration, and loss including theft. Delivery schedules shall be controlled to minimize long-term storage of products at site and overcrowding of construction spaces. In particular, the CONTRACTOR shall ensure minimum holding or storage times for products recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other sources of loss.

#### 1.4 TRANSPORTATION AND HANDLING

- A. Products shall be transported by methods to avoid product damage and shall be delivered in undamaged condition in manufacturer's unopened containers or packaging.
- B. The CONTRACTOR shall provide equipment and personnel to handle products, materials, and equipment by methods to prevent soiling and damage.
- C. The CONTRACTOR shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging, and surrounding surfaces.



## SECTION 01600 - MATERIALS AND EQUIPMENT

### 1.5 STORAGE AND PROTECTION

- A. Products shall be stored in accordance with manufacturer's written instructions, with seals and labels intact and legible. Sensitive products shall be stored in weather-tight climate controlled enclosures and temperature and humidity ranges shall be maintained within tolerances required by manufacturer's written instructions.
- B. For exterior storage of fabricated products, they shall be placed on sloped supports above ground. Products subject to deterioration shall be covered with impervious sheet covering; ventilation shall be provided to avoid condensation.
- C. Loose granular materials shall be stored on solid surfaces in a well-drained area and shall be prevented from mixing with foreign matter.
- D. Storage shall be arranged in a manner to provide access for maintenance and inspection. The CONTRACTOR shall periodically inspect to assure products are undamaged and are maintained under required conditions.

### 1.6 MAINTENANCE OF STORAGE

- A. Stored products shall be periodically inspected on a scheduled basis. The CONTRACTOR shall maintain a log of inspections and shall make said log available to the ENGINEER on request.
- B. The CONTRACTOR shall verify that storage facilities comply with manufacturer's product storage requirements.
- C. The CONTRACTOR shall verify that manufacturer-required environmental conditions are maintained continually.
- D. The CONTRACTOR shall verify that surfaces of products exposed to the elements are not adversely affected and that any weathering of finishes does not occur.
- E. For mechanical and electrical equipment, the CONTRACTOR shall provide a copy of the manufacturer's service instructions with each item and the exterior of the package shall contain notice that instructions are included.
- F. Products shall be serviced on a regularly scheduled basis, and a log of services shall be maintained and submitted as a record document prior to acceptance by the OWNER in accordance with the Contract Documents.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

## SECTION 01700 - PROJECT CLOSE-OUT

### PART 1 – GENERAL

- 1.1 FINAL CLEAN-UP. The CONTRACTOR shall promptly remove from the vicinity of the completed work, all rubbish, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction. Final acceptance of the WORK by the OWNER will be withheld until the CONTRACTOR has satisfactorily complied with the foregoing requirements for final clean-up of the project site.
- 1.2 CLOSEOUT TIMETABLE. The CONTRACTOR shall establish dates for equipment testing, acceptance periods, and on-site instructional periods (as required under the Contract). Such dates shall be established not less than one week prior to beginning any of the foregoing items, to allow the OWNER, the ENGINEER, and their authorized representatives sufficient time to schedule attendance at such activities.
- 1.3 FINAL SUBMITTALS. The CONTRACTOR, prior to requesting final payment, shall obtain and submit the following items to the ENGINEER for transmittal to the OWNER:
  1. Written guarantees, where required.
  2. Maintenance stock items; spare parts, special tools, where required.
  3. Completed redline record drawings.
  4. Certificates of inspection and acceptance by governing agencies having jurisdiction.
  5. Releases from all parties who are entitled to claims against the subject Project, property, or improvement pursuant to the provisions of law.
  6. Completed Certificate of Compliance and Release for all contractors involved in the WORK. Submit the original signed document to Project Manager.
  7. A tax clearance from both the Department of Labor and the Department of Revenue are required.
  8. Technical Manual (O&M Manual)
  9. DOL's Notice of Completion of Public Works.
- 1.4 MAINTENANCE AND GUARANTEE
  - A. The CONTRACTOR shall comply with the maintenance and guarantee requirements contained in Article 13 of the General Conditions.
  - B. Replacement of earth fill or backfill, where it has settled below the required finish elevations, shall be considered as a part of such required repair work, and any repair or resurfacing constructed by the CONTRACTOR which becomes necessary by reason of such settlement shall likewise be considered as a part of such required repair work unless the CONTRACTOR shall have obtained a statement in writing from the affected private owner or public agency releasing the OWNER from further responsibility in connection with such repair or resurfacing.
  - C. The CONTRACTOR shall make all repairs and replacements promptly upon receipt of written order from the OWNER. If the CONTRACTOR fails to make such repairs or replacements promptly, the OWNER reserves the right to do the WORK and the CONTRACTOR and his surety shall be liable to the OWNER for the cost thereof.

**SECTION 01700 - PROJECT CLOSE-OUT**

- 1.5 BOND. The CONTRACTOR shall provide a bond to guarantee performance of the provisions contained in Paragraph "Maintenance and Guarantee" above, and Article 13 of the General Conditions.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

**END OF SECTION**

## **SECTION 01704 - FINAL CLEAN-UP AND SITE RESTORATION**

### **PART 1 - GENERAL**

- 1.1 DESCRIPTION. The WORK under this Section includes providing all supervision, labor, materials, tools and equipment necessary for final clean-up and restoration of all areas disturbed by construction activities, to a condition equal to, or better than, before construction started. This does not include clean-up or restoration incidental to, or directly provided for by, other construction items.

### **PART 2 - PRODUCTS**

- 2.1 MATERIALS. Any materials required shall conform to the appropriate Section of these Specifications.

### **PART 3 - EXECUTION**

#### **3.1 CONSTRUCTION**

- A. The CONTRACTOR shall clean up all sites disturbed during construction of the project. This includes removal of all construction equipment, disposal of all excess materials, disposal of all rubbish and debris, removal of all temporary structures, and grading of the sites so that no standing water is evident.

**END OF SECTION**

## **SECTION 02060 – DEMOLITION, SALVAGE AND DISPOSAL**

### **PART 1 - GENERAL**

#### **1.1 DESCRIPTION**

- A. WORK under this Section shall include all labor, materials, tools and equipment necessary for the excavation, demolition, salvage and/or proper offsite disposal or storage of all items as described herein and as shown on the Plans. The CONTRACTOR shall provide an appropriate offsite disposal site for all items designated to be disposed. Demolition and disposal methods shall meet all local, state and federal regulations.
- B. The Contractor shall visit the site and determine the extent of salvage and off site disposal prior to bid.

### **PART 2 - PRODUCTS (Not Used)**

### **PART 3 - EXECUTION**

#### **3.1 DEMOLITION AND DISPOSAL**

- A. Saw cut existing concrete slab-on-grade as shown on the plans and dispose of the concrete. The existing slab thicknesses and reinforcement is unknown and in deteriorating condition.
- B. Demolition of the structures and items indicated on the plans shall be done in such a manner as to minimize damage to materials being salvaged.
- C. Conduct demolition to minimize interference with adjacent structures and interruption to public services.
- D. Cease operations immediately if adjacent structures appear to be in danger and notify ENGINEER. Do not resume operations until directed by ENGINEER
- E. Demolish and dispose all other incidental and miscellaneous items as required to complete the project.
- F. Construction signs and barricades shall be installed as required to prevent public entry into WORK area.
- G. All excavation and disposal of suitable and unsuitable excavation shall be per Section 02202 – Excavation and Embankment.
- H. All suitable surplus excavation shall be utilized within the foundation backfill prism.

**END OF SECTION**

**SECTION 02202- EXCAVATION AND EMBANKMENT**

**PART 1 - GENERAL**

1.1 DESCRIPTION. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for excavation and embankment construction to the lines, grades and cross sections indicated in the Plans or as directed by the ENGINEER.

**PART 2 - PRODUCTS**

2.1 EXCAVATION. All excavation shall be unclassified excavation, and shall consist of excavation and disposal or use of all materials, of whatever character, encountered in the WORK.

2.2 EMBANKMENT. Material for embankment construction shall consist of earth, sand, gravel, fractured rock or combination thereof containing no muck, peat, frozen materials, roots, sod or other deleterious materials, and shall be compactable to the density required by the specifications. All embankment material shall be 18-inch minus in its greatest dimension.

2.3 BORROW. Borrow shall meet the requirements for Embankment above.

2.4 USABLE MATERIAL FROM EXCAVATION. Usable material from excavation shall meet the requirements for Embankment above, when used within the Borrow limits, respectively.

2.5 CLASS A SHOT ROCK BORROW. Class A shot rock borrow shall consist of hard angular and blasted quarry rock having a percentage of wear of not more than 50 at 500 revolutions, as determined by ASTM C535. Class A shot rock borrow shall meet the following gradation:

SIEVE SIZE	% PASSING BY WEIGHT
6-Inch	100
4-Inch	70 – 100
2-Inch	40 – 80
No. 4	20 – 55
No. 200*	0 – 6
*Gradation shall be determined on that portion passing the 3-inch screen.	

2.6 FOUNDATION BACKFILL. Foundation backfill shall meet the requirements of Class A Shot Rock Borrow listed above.

2.7 TEST PITS. Tests pit locations shall be excavated as directed by the ENGINEER on-site to determine suitability of existing subbase material.

**PART 3 – EXECUTION**

**3.1 EXCAVATION**

A. To reduce sedimentation in the waters of the U.S., placement of fill material in inertial areas shall be performed during low tide stages, when the site is dewatered.

## SECTION 02202- EXCAVATION AND EMBANKMENT

- B. Clearing and grubbing in excavation areas must be completed prior to beginning excavation operations.
- C. Excavations shall be reasonably smooth and uniform to the lines, grades and cross sections shown in the plans or as directed by the ENGINEER. Excavations shall be conducted to insure that material outside of excavation limits remains undisturbed.
- D. Excavations shall be protected from erosion and maintained to drain freely at all times.
- E. Excavation in rock is not anticipated. The ENGINEER shall be immediately notified of any bedrock that is encountered during excavation. The ENGINEER shall then determine the extent of required excavation in rock. Required excavations that cannot be performed by ripping or that cannot be performed without blasting or jackhammering methods shall be considered a differing site condition.
- F. Where excavation to the limits indicated on the Plans encounters unsuitable underlying material, the ENGINEER may require the CONTRACTOR to perform foundation sub-excavation to remove the unsuitable material and backfill with foundation backfill material. The CONTRACTOR shall allow time to take the necessary cross section measurements before backfill is placed.
- G. Excavated soils that do not meet the requirements for embankment materials shall be disposed of by the CONTRACTOR at a CBW provided location off site. The disposal site is located north of the site on Wrangell's waterfront along Brueger Street. No material may be wasted without the prior approval of the ENGINEER.
- H. The CONTRACTOR is responsible for securing waste disposal sites if none are indicated on the plans. The CONTRACTOR shall obtain the written permission of the landowner for use of all disposal sites, and shall either obtain any required PERMITS or assure that others have obtained them. If requested by the ENGINEER, the CONTRACTOR shall furnish the permit numbers of all required PERMITS for the disposal sites. The cost of securing such sites shall be borne by the CONTRACTOR.
  - 1. Saw dust, stumps and timber debris excavation can be disposed of at a City and Borough of Wrangell location. A pit on the Spur Road is available. If there is a need for additional saw dust, stumps and timber debris excavation disposal, it will be stockpiled at Shoemaker Harbor. The contractor shall coordinate with the CBW Project Manager for location.
  - 2. Concrete excavation can be disposed of north of the site in the water. The contractor shall coordinate with the CBW Project Manager for location.
  - 3. Metal debris may be disposed of at the CBW transfer facility. Also known as the "old landfill".

The disposal/storage sites listed above are available to the contractor at no charge for the WMSC Concrete Paving Phase II project. The maximum distance to any disposal site is 4.5 miles.

- I. If the CONTRACTOR fails to comply with the provisions of any city ordinance or permit pertaining to waste disposal or disposal sites; the OWNER shall have the right, after giving 30 days written notice, to bring the disposal sites into compliance and collect the

## SECTION 02202- EXCAVATION AND EMBANKMENT

cost of the WORK from the CONTRACTOR, either directly or by withholding monies otherwise due under the Contract.

- J. Temporary storage of useable or suitable excavation is the responsibility of the CONTRACTOR, and no additional payment will be made. All suitable surplus excavation shall be utilized within the foundation backfill prism. Useable or suitable excavation shall not be utilized as bedding.
- J. The CONTRACTOR shall conduct all operations to prevent contaminating useable excavation with unsuitable material.
- K. When frozen material is excavated and meets all other requirements for embankment material, it shall be allowed to thaw and drain prior to placing in the embankment. This material will be considered useable excavation and no additional payment will be made.
- L. The CONTRACTOR shall provide added care including bracing and shoring as required when excavating adjacent to existing structures. Damage caused to structures by the CONTRACTOR shall be repaired at the CONTRACTOR's expense.
- M. After excavation to the subcut limit is complete and prior to placing backfill the bottom of the subcut shall be compacted/proof rolled with an excavator or backhoe mounted vibrating compactor until a firm base for the backfill material is obtained. A minimum level of effort will be field determined with the Engineer. The Engineer will field determine if subexcavation will be required.

### 3.2 EMBANKMENT

- A. Embankments shall be constructed to a reasonably smooth and uniform shape conforming to the lines, grades and cross sections indicated on the Plans or as directed by the ENGINEER.
- B. The underlying ground shall be properly prepared and graded prior to placing embankment material. Clearing and grubbing in embankment areas must be completed prior to embankment operations. Debris shall be removed and surface depressions or holes shall be filled with suitable material to a level uniform surface and compacted before the embankment is constructed.
- C. When embankment is to be placed on hillsides steeper than a 4:1 slope, new embankment is to be placed alongside existing embankments, or embankments are to be built half width at a time; the foundation shall first be prepared by constructing benches of sufficient width to accommodate placing and compacting equipment. Each bench shall begin at the intersection of the original ground and the vertical side of the previous cut. Material so excavated and suitable for embankment construction shall be incorporated into the new embankment. Benching is incidental to other items in the contract and no direct payment will be made therefore.
- D. Wherever an existing compacted roadway surface containing granular material lies within three feet of the new embankment surface, such existing roadway shall be scarified to a depth of six inches and incorporated into the first layer of embankment.



## **SECTION 02202- EXCAVATION AND EMBANKMENT**

- E. Embankments over soft ground may be constructed by end dumping an initial lift of sufficient depth to support hauling and spreading equipment.
  - F. Embankments shall meet the requirements as defined in Part 3.1 Excavation.
  - G. The finish subgrade surface shall not vary more than 0.1-foot when tested using a 10-foot straightedge, nor more than 0.1-foot from established grade. Additionally, the algebraic average of all deviations from established finished subgrade elevations taken at 100-foot intervals shall be less than 0.05-foot.
- 3.3 **EMBANKMENTS CONSTRUCTED WITH MOISTURE DENSITY CONTROL.** Except for embankments constructed predominantly of rock fragments or boulders, all embankments shall be constructed with moisture density control. Embankments shall be placed in horizontal layers not to exceed eight inches in depth, loose measurement, for the full width of the embankment, except as required for traffic, and shall be compacted before the next layer is placed. Embankments shall be compacted at the approximate optimum moisture content to not less than 95% of the maximum density as determined by AASHTO T 180 method D or Alaska T-12. Embankment materials may require drying or moistening to bring the moisture content near to optimum. In place field densities will be determined by Alaska T-3 or T-11. Sufficient time shall be allowed between layers to allow for field density tests.
- 3.4 **EMBANKMENTS CONSTRUCTED WITH CLASS A SHOT ROCK BORROW.**
- A. Class A Shot Rock Borrow subgrade shall be constructed in 12-inch maximum lifts to the embankment tolerances described in paragraph 3.2.G.
  - B. Class A Shot Rock Borrow shall not be dumped in final position but shall be deposited on the fill and distributed by blading or dozing so that voids, pockets and bridging will be reduced to a minimum. Intervening spaces and interstices shall be filled with smaller stones and earth to form a dense, well-compacted embankment. Hauling equipment shall be uniformly routed over the entire width of the embankment. Compaction shall be accomplished by a minimum level of compactive effort consisting of 6 complete coverage passes with a 15-ton minimum vibratory steel drum roller suitably equipped by the manufacturer for compacting shot rock materials.
- 3.5 **TEST PITS.**
- A. The CONTRACTOR shall excavate test pits in the presence of the ENGINEER.
  - B. Tests pits shall consist of excavation to maximum depth of 12 feet below the limits of excavation as shown in the plans. Test pit sidewall excavation, as directed by the ENGINEER, to investigate and determine suitability of material shall be included at no additional cost to the OWNER.
  - C. The contractor shall backfill and compact the test pit excavation.

**END OF SECTION**

**SECTION 02203 - TRENCH EXCAVATION, BACKFILL & BEDDING**

**PART 1 - GENERAL**

1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for the excavation and backfill required for installation of pipelines, manholes, vaults, diversion structures, and other appurtenances; and for ground surface restoration, including pavement.

**PART 2 - MATERIALS**

2.1 TRENCH EXCAVATION

- A. Trench excavation shall consist of all material, of whatever nature, excepting liquids, excavated from trenches within the limits described in Section 01025 - Measurement and Payment.

2.2 BEDDING

- A. Bedding, Class A, shall be aggregate conforming to the following gradation:

<b>Sieve Designation</b>	<b>Percent Passing by Weight</b>
1-1/2"	100
No. 4	0-35
No. 200	0-8

- B. Bedding, Class B, shall be three inch minus material, free of muck, frozen material, lumps, organic material, trash, lumber or other debris, with no more than eight percent passing the No. 200 screen.
- C. Bedding material for pipe placement shall be non-frost susceptible material.
- D. All bedding shall be imported. No suitable excavation shall be utilized as bedding.

2.3 BACKFILL

- A. Backfill is defined as material placed above the level of bedding material. Backfill material consists of native material excavated from the trench that is determined by the ENGINEER to be suitable as backfill. Backfill material used under asphalt or concrete pavement, as shown on the Drawings, shall be non-frost-susceptible, granular material that is free of rocks larger than six inches, much, frozen material, lumps, organic material, trash, lumber, or other debris. All backfill material available from trench excavation shall be utilized prior to the use of the imported backfill.

2.4 IMPORTED BACKFILL

- A. Imported backfill shall conform to Class A Shot Rock Borrow of Section 02202 – Excavation and Embankment.

## SECTION 02203 - TRENCH EXCAVATION, BACKFILL & BEDDING

### 2.5 AGGREGATE BASE

- A. Aggregate base shall conform to Grading C-1 of Section 02204 - Base Course.

### 2.6 PORTLAND CEMENT CONCRETE

- A. Portland cement concrete shall conform to that specified in Section 03301 - Structural Concrete.

## PART 3 - EXECUTION

### 3.1 EXCAVATION

- A. Excavation for trenches shall conform to the lines and grades shown on the Drawings and to the limits depicted in the Standard Details. The CONTRACTOR shall also do any WORK necessary to prevent surface water from entering the trench.
- B. Excavation of any and all material more than six inches below the invert of the pipe as shown on the Drawings shall be done only when ordered in writing by the ENGINEER. The material so excavated will be handled in the manner described below:
  - 1. All excavated material suitable for use as backfill shall be piled in an orderly manner separately from unsuitable material, at a sufficient distance from the edge of the trench to prevent material from sloughing or sliding back into the trench. When the trench is in a traveled roadway the ENGINEER may require removal and temporary storage of excavated material elsewhere.
  - 2. Materials unsuitable for use as backfill shall be hauled to a CONTRACTOR furnished disposal site off of the Project, unless otherwise directed in writing by the ENGINEER. The CONTRACTOR is responsible for securing waste disposal sites if none is indicated on the Drawings. The CONTRACTOR shall obtain the written permission of the landowner for use of all disposal sites, and shall either obtain any required permits or assure that they have been obtained by others. If requested by the ENGINEER, the CONTRACTOR shall furnish the permit numbers of all required permits for the disposal sites. The cost of securing such sites shall be borne by the CONTRACTOR.
  - 3. If the CONTRACTOR fails to comply with the provisions of any city ordinance or permit pertaining to waste disposal or disposal sites, the OWNER shall have the right, after giving 30 days written notice, to bring the disposal sites into compliance and collect the cost of the WORK from the CONTRACTOR, either directly or by withholding monies otherwise due under the contract.
- C. No more than 150 feet of trench shall be open in advance of laying the pipe, and no more than ten feet of trench shall remain open at the end of each working period. When the trench is in a traveled roadway, it shall be completely backfilled, in accordance with the Specifications, and opened to traffic at the end of each working period, unless otherwise
- D. The CONTRACTOR shall protect and preserve all existing pavement not designated for replacement, throughout the entire construction period. No tracked equipment may be operated on any pavement without first protecting the pavement with pavement pads

## **SECTION 02203 - TRENCH EXCAVATION, BACKFILL & BEDDING**

approved by the ENGINEER. All pavement which is damaged in any manner by the CONTRACTOR's operations shall be restored to original or better condition at the CONTRACTOR's expense. Repair WORK to state highways shall be in all ways satisfactory to the Alaska Department of Transportation and Public Facilities.

- E. Where required to prevent caving of the trench, or by any safety law or regulation such as OSHA, the CONTRACTOR shall furnish and install bracing and/or sheeting to protect the excavation. This bracing and/or sheeting shall be removed as trench backfill progresses.
- F. The CONTRACTOR shall remove and dispose of all water entering the excavation. Disposal of water shall be done in a manner to prevent damage or nuisance to adjacent property, and in accordance with all applicable laws and regulations. Pumps shall be adequate to maintain a dry trench during the bedding, pipe installation, and initial backfill to an elevation at least one foot above the top of pipe. No backfill may be placed in standing water under any circumstances, except when the Drawings and/or Specifications specifically permit installation of HDPE water pipe in a wet trench.
- G. Excavations for manholes and similar structures shall be large enough to provide proper working room. Any over depth excavation shall be backfilled with concrete or other approved material at the CONTRACTOR's expense.
- H. The CONTRACTOR shall provide temporary support of existing structures, as necessary, to protect the structures from settlement or other disturbances caused by construction activities. All structures disturbed by the CONTRACTOR's activities shall be returned to original condition, or better.

### **3.2 BEDDING**

- A. Bedding shall be placed in conformance with the lines and grades shown on the Drawings and to the limits depicted in the Details. Before placing any bedding material, the bottom of the trench shall be hand raked ahead of the pipe laying operation to remove stones and lumps which will interfere with smooth and complete bedding of the pipe. The specified bedding material shall then be placed in layer(s) the full width of the trench, each layer not exceeding eight inches in thickness loose measure, and compacted to 95% of maximum density as determined by AASHTO T 180 D, until the elevation of the plan grade for the pipe invert is attained. The pipe bed shall then be fine-graded by hand and compacted as above. Bell holes shall be hand dug at the location of joints and shall be of sufficient size to allow proper making of the joint and to prevent the collar or bell of the pipe from bearing on the bottom of the trench.
- B. After the pipe has been laid and approved for covering, the specified bedding material shall be placed evenly on both sides of the pipe for the full width of the trench. Approval for covering does not imply final acceptance of the pipe, or relieve the CONTRACTOR in any way of responsibility to complete the Project in conformance with the Drawings and Specifications. Bedding material shall be placed in layers. The thickness, loose measure, or the first layer shall be either one-half the outside diameter of the pipe plus two inches or eight inches, whichever is least. This layer shall be compacted as specified above to provide solid support to the underside of the pipe.

## SECTION 02203 - TRENCH EXCAVATION, BACKFILL & BEDDING

- C. The bedding material shall be placed and compacted in layers not more than eight inches in thickness, loose measure, up to a plane 12 inches above the top of the pipe.
- D. The initial density test at any location will be paid for by the OWNER. If the initial test shows that the material compaction is not as specified, the CONTRACTOR shall modify the compaction methods used, as approved by the ENGINEER, and have the material re-tested until the tests show that the compaction method meets with the Specification requirements. If the CONTRACTOR's compaction methods are not consistent and/or do not meet the requirements of these Specifications, the OWNER reserves the right to undertake additional compaction tests as necessary to determine the extent of substandard compaction, and to charge the CONTRACTOR for all such tests.

### 3.3 BACKFILL

- A. The trench shall be backfilled above the bedding material, as shown in the Details, with approved material saved from trench excavation. If there is not sufficient approved material from the excavation, the backfilling of the trench shall be completed utilizing imported backfill. The backfill and/or imported backfill shall be compacted to 95% of optimum density within the street and sidewalk limits, as shown on the Drawings, and 90% elsewhere, as determined by AASHTO T 180 D. Lifts shall not exceed 12 inches in depth for loose material. After backfilling of the trench is completed, any excess material from trench excavation shall be hauled to a CONTRACTOR furnished disposal site off of the Project.
- B. Where trenches cross roadways, streets or driveways, airport aprons, taxi lanes, etc., backfilling shall be done immediately following excavation and laying of the pipe. All crossings shall be backfilled, compacted, and open to traffic at the end of each working period. Major road crossings shall be excavated and backfilled in half widths of the traveled way so that at least one-half of the roadway is open to controlled traffic at all times during the WORK. All WORK performed within a right-of-way shall be done in conformance with the appropriate permits issued by the respective agency having jurisdiction over the right-of-way.
- C. At least 24 hours prior to commencing backfilling operations, the CONTRACTOR shall notify the ENGINEER of the proposed method of compaction. No method will be approved until the CONTRACTOR has demonstrated, under actual field conditions, that such method will produce the degree of compaction required.
- D. The initial density test at any location will be paid for by the OWNER. If the initial test shows that the material compaction is not as specified, the CONTRACTOR shall modify the compaction methods used, as approved by the ENGINEER, and have the material re-tested until the tests show that the compaction meets the Specification requirements. If the CONTRACTOR's compaction methods are not consistent and/or do not meet the requirements of these Specifications, the OWNER reserves the right to undertake additional compaction tests as necessary to determine the extent of substandard compaction, and to charge the CONTRACTOR for all such tests.

### 3.4 AGGREGATE BASE

- A. Aggregate base shall be placed in layers not exceeding six inches compacted depth, extending the full width of the trench and compacted to 95% of maximum density as

## **SECTION 02203 - TRENCH EXCAVATION, BACKFILL & BEDDING**

determined by AASHTO T 180 D. The thickness of the top layer shall be such that, after compaction, the surface shall be at the elevation shown in the Drawings or Details. Care shall be taken to assure proper compaction near the sides of the trench, and to avoid segregation.

### **3.5 PORTLAND CEMENT CONCRETE**

- A. Portland cement concrete shall be replaced in accordance with Section 03301 - Structural Concrete, and the details shown on the Drawings and Standard Details.

**END OF SECTION**

## SECTION 02204 - BASE COURSE

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and placing one or more layers of aggregate base or leveling course on a prepared surface to the lines and grades shown on the Plans.

### PART 2 - PRODUCTS

#### 2.1 MATERIAL

- A. Aggregate base course shall consist of crushed gravel or crushed stone, conforming to the quality requirements of AASHTO M 147. The aggregate shall be free from lumps, balls of clay, or other objectionable matter, and shall be durable and sound.

1. Base course shall be sampled according to "WAQTC FOP for AASHTO T2 – Sampling Aggregates" as described in the *Alaska Test Methods Manual*, published by the Alaska Department of Transportation and Public Facilities.
2. Coarse aggregate (that material retained on the No. 4 sieve) shall be crushed stone and shall consist of sound, tough, durable rock of uniform quality. Rock shall be free of schist that cleaves along preferred foliation planes. Rock shall be free of platy mineral grains. Metamorphosed rock shall be free of slaty cleavage. All material shall be free from clay balls, vegetable matter or other deleterious matters. Coarse aggregate shall not be coated with dirt or other finely divided mineral matter. All aggregates shall be free of roots and wood. In addition, coarse aggregate shall meet the following requirements:

Property	Value	Test Method
L.A. Wear, %	25 max.	AASHTO T 96
Degradation Value	45 min.	ATM 313
Fracture, %	70 min.	WAQTC FOP for AASHTO TP 61
Sodium Sulfate Loss, %	9 max.	AASHTO T 104

3. Aggregate shall not exceed eight (8) percent thin -elongated pieces as determined by ATM 306.
  4. Fine Aggregate: Fine aggregate (passing the No. 4 sieve) shall meet the quality requirements of AASHTO M 29.
- B. Base course material shall conform to one of the following gradations as specified:

**SECTION 02204 - BASE COURSE**

BASE COURSE GRADATIONS  
(Percent passing by weight)

Sieve Desig.	<u>A</u>	<u>B</u>	<u>C</u>	<u>C-1</u>	<u>D</u>	<u>D-1</u>	<u>E</u>	<u>E-1</u>
4	100							
2	85-100	100						
1 1/2				100				
1			100	70-100		100		
3/4				60-90	100	70-100		100
3/8				45-75		50-80		
No. 4	30-60	30-70	40-75	30-60	45-80	35-65		45-80
No. 8				22-52		20-50		32-80
No. 10			25-55		30-65			
No. 40				8-30		8-30		
No. 200	0-6	3-10	4-10	0-6	4-12	0-6	0-6	0-6

- C. For gradings C, D, & E at least 50% by weight of the particles retained on the No. 4 sieve shall have at least one fractured face as determined by WAQTC FOP for AASHTO TP 61 as described in ATM 305.
- D. For gradings A, C-1, D-1 & E-1, at least 70% by weight of the particles retained on a No. 4 sieve shall have at least one fractured face as determined by WAQTC FOP for AASHTO TP 61 as described in ATM 305.

**PART 3 - EXECUTION**

**3.1 CONSTRUCTION**

- A. Prior to placement of the base course, the underlying surface shall be prepared by dressing, shaping, wetting or drying, and compacting of the underlying material to a minimum density of 95% as determined by AASHTO T 180-D or as specified under Section 02202 – Excavation And Embankment. Surfaces shall be cleaned of all foreign substances and debris.
- B. Any ruts or soft yielding spots that may appear shall be corrected by loosening and removing unsatisfactory material and adding approved material as required, reshaping, and recompacting the affected areas to the lines and grades indicated on the Plans. If required by the ENGINEER, the CONTRACTOR shall proof load questionable areas with a loaded truck or other piece of equipment approved by the ENGINEER.
- C. Blue tops shall be set to the top of base course. They shall be set by the CONTRACTOR at breaks in grade and on even grade at intervals not to exceed 50'.
- D. Base course material shall be deposited and spread in a uniform layer to the required grades, and to such loose depth that when compacted to the density required, the thickness will be as indicated on the plans. Portions of the layer which become segregated shall be removed and replaced with a satisfactory mixture, or shall be remixed to the required gradation.



## **SECTION 02204 - BASE COURSE**

- E. The maximum compacted thickness of any one layer shall not exceed six (6) inches. If the required compacted depth exceeds six (6) inches, the base shall be constructed in two (2) or more layers of approximately equal thickness. Each layer shall be shaped and compacted before the succeeding layer is placed.
- F. The base course shall be compacted to at least 95% of maximum density as determined by AASHTO T 180-D. In places not accessible to rolling equipment, the mixture shall be compacted with hand tamping equipment.
- G. Blading, rolling, and tamping shall continue until the surface is smooth and free from waves and irregularities. If at any time the mixture is excessively moistened, it shall be aerated by means of blade graders, harrows, or other approved equipment, until the moisture content is such that the surface can be recompacted and finished as above.
- H. The finished surface of the base course, when tested using a 10-foot straightedge, shall not show any deviation in excess of 3/8-inch between two contact points. The finish surface shall not vary more than 1/2-inch from established grade. Additionally, the algebraic average of all deviations from established grade of the finish base course surface elevations taken at 50-foot intervals shall be less than 0.02-foot.
- I. The initial density test at any location will be paid for by the OWNER. If the initial test shows that the material compaction is not as specified, the CONTRACTOR shall modify the compaction methods used, as approved by the ENGINEER, and have the material retested until the tests show that the compaction meets the specification requirements. All tests, after the initial test at any given location, shall be paid for by the CONTRACTOR.

**END OF SECTION**

## SECTION 02205 - RIPRAP

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing a protective covering of stone, as shown on the Plans, or as directed by the ENGINEER.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Stone for this work shall be hard angular quarry stones, having a percentage of wear of not more than 50 at 500 revolutions as determined by ASTM C535. The least dimension of any piece of stone shall be not less than 1/3 of its greatest dimension. Stones shall meet the following gradation based on the number of stones method of grading as described below:

##### Class II

No more than 10% of the stones by total number shall weigh more than 400 pounds per piece and no more than 15% by total number of the stones shall weigh less than 25 pounds per piece. The stones shall be evenly graded and a minimum of 50% by total number of the stones shall weigh 200 pounds or more per piece.

### PART 3 - EXECUTION

#### 3.1 GENERAL

- A. Foundation or toe trenches and other necessary excavation shall be completed by the CONTRACTOR and approved by the ENGINEER before the placing of riprap commences. Slopes to be protected with riprap shall be free of brush, trees, stumps and other objectionable material, and shall be dressed to a reasonably smooth surface.
- B. Unprotected embankment and slopes are subject to erosion from wave action at this site. Placement of riprap shall be scheduled to provide protection against erosion of the underlying embankment and excavated slopes at all times.
- C. Riprap shall be uniformly placed to its full course thickness in one operation on prepared slopes and in such a manner to avoid damaging filter cloth or displacing underlying material. Placement shall proceed up the slope from the toe. Placement by end dumping methods from the top of the slope will not be allowed.
- D. Riprap shall be placed and distributed by mechanical means to provide a uniform mass of stones. All riprap shall be so placed and distributed that there are no large accumulation or area composed mainly of either the larger or smaller sizes of stones. Segregated areas consisting predominantly of smaller or larger stones shall be adjusted and redistributed by mechanical means.
- E. Undesirable voids shall be filled with smaller stones or spalls. The rock shall be

## **SECTION 02205 - RIPRAP**

manipulated sufficiently by means of an excavator, rock tongs, or other suitable equipment to secure a regular surface plane and mass stability.

- F. Riprap shall be placed in conjunction with the construction of embankment to prevent erosion with only sufficient lag in construction of the riprap protection as may be necessary to place filter cloth to prevent mixture of the underlying materials with the riprap.
- G. The CONTRACTOR shall provide a level compact area of sufficient size to dump and sort typical loads of riprap material for routine inspection and approval prior to placement. The CONTRACTOR shall provide assistance, including mechanical equipment, at no additional cost to the OWNER or ENGINEER, as required to sort, measure, and inspect individual stones intended for final placement and for the purpose of determining if the riprap is within Specifications.
- H. Final acceptance of riprap materials shall be in final location following field sorting, mechanical manipulation and placement.

**END OF SECTION**

## SECTION 02401 - SANITARY SEWER PIPE

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing sanitary sewer pipe, in accordance with these Specifications and in reasonably close conformity with the lines and grades shown on the Drawings or established by the ENGINEER.
- B. This WORK includes furnishings and installing connecting bands, branch connections, elbows or other fittings, and all appurtenances required to complete the sanitary sewer.

#### 1.2 SUBMITTALS

- A. Sanitary Sewer Pipe: Material certifications stating conformance with the requirements of this Section.
- B. Frames and Grates: Catalogue cuts and materials certification

### PART 2 - PRODUCTS

#### 2.1 DUCTILE IRON PIPE FOR GRAVITY SEWER

- A. Ductile Iron Pipe shall conform to ANSI A21.51. Pipe and fittings shall be cement mortar lined in conformance with ANSI A21.4 and shall have an exterior bituminous coating conforming to the requirements of ANSI A21.10. Pipe joints shall conform to ANSI A2.11 and shall be push-on type as manufactured by United States Pipe and Foundry Company for Tyton pipe, or equal.
- B. Prior to the use of any pipe, the CONTRACTOR shall furnish a certification from the pipe manufacturer that all required tests have been made and that the pipe fully complies with the requirements of ANSI A21.51.
- C. Nominal pipe diameter is shown on the Drawings. No change in pipe diameter shall be made unless approved by the ENGINEER. The minimum pipe strength shall be thickness Class 50. The pipe size and thickness class shall be clearly marked on each pipe.
- D. Where special fittings are required, they shall be fabricated from steel pipe manufactured in accordance with AWWA Standard C200. The steel fitting shall be fabricated with spigot ends suitable for connection to the ductile iron pipe, with cast iron transition couplings as manufactured by Smith-Blair, Inc., or equal. Steel fittings shall be lined and coated with fusion epoxy system as supplied by Water Works Supply Company, Union City, California, or with hot applied coal tar in accordance with AWWA C203.
- E. Connections between ductile iron pipe and PVC pipe shall be made with "ROMAC" Stainless Steel Sleeve, or approved equal.

## SECTION 02401 - SANITARY SEWER PIPE

### 2.2 UNDERGROUND MARKING TAPE

- A. Underground marking tape shall be green, at least four (4) inches wide, four mil thick, polyethylene tape, with a metallic backing capable of being traced with locators. The tape shall have black letters with the following wording: "Caution: Sewer Line Buried Below." The marking tape shall be installed 12 inches above the top of all sewer mains and services.

## PART 3 - EXECUTION

### 3.1 CONSTRUCTION

- A. Excavation, bedding, and backfill shall conform to the requirements of Section 02203 - Trenching. Underground marking tape shall be installed as shown on the Detail.
- B. Sheeting and bracing required for trenches shall be removed to the elevation of the conduit, but no sheeting will be allowed to be pulled, removed, or disturbed below the conduit. Sheeting and bracing shall meet OSHA requirements.
- C. Before lowering into the trench, the pipe shall be inspected for defects. All cracked, chipped, or broken pipe shall be discarded. The ends and interior of the pipe shall be clean. Belled ends shall be laid upgrade. Handling of the pipe shall be accomplished in a manner that will not damage the pipe. The joint shall be made in the manner recommended by the manufacturer. Care shall be taken not to buckle or disturb previously laid pipe.
- D. Pipe shall be laid accurately to the staked line and grade. All service connections shall be installed as indicated on the Drawings. Where existing service sewers are to be connected, suitable fittings and adapters shall be provided by the CONTRACTOR.
- E. Pipe shall be cleaned of all foreign matter, and water shall be kept out of trenches until joints have been completed. When WORK is not in progress, open ends of pipe and fittings shall be securely closed to keep foreign matter and animals from entering.
- F. Each joint shall be inspected to ensure that it is properly made before backfilling is done. Care shall be taken to prevent any dirt or foreign matter from entering the open end of the pipe. Where it is necessary to cut pipe, such cuts shall be neatly made in an approved manner. The laid pipe shall be true to line and grade and, when completed, the sewer shall have a smooth and uniform invert. No section of gravity sewer, including service connections shall have an adverse grade which would pond water in the invert of the sewer.
- G. Connections to pipe stubs of a different pipe material shall be made with Romac Industries 501 or approved equal coupling for dissimilar sanitary sewer pipes. Connectors must be approved by the ENGINEER prior to installation.

## SECTION 02401 - SANITARY SEWER PIPE

- H. Connections to existing sewer mains, service connections, and manholes shall be made in such a manner so as to not damage the existing facility. Such connections shall be made so that no projections or rough surfaces occur within the pipe.
- I. Where gravity flow sanitary sewers cross above or less than 18 inches below waterlines, or approximately parallel water lines within ten feet horizontally, the sewer pipe shall meet the requirements of ductile iron pipe or PVC pressure pipe, as described in Part 2 of this Section.
- J. Cleanouts shall be constructed as shown on the Drawings and Details. The frame shall be jointed to the riser pipe so that groundwater will be prevented from entering the sewer. Cleanouts shall be tested for watertightness along with the sewers to which they are connected.
- K. The CONTRACTOR shall repair all imperfections and leaks disclosed by either visual inspection or testing. The method of repair shall be subject to the ENGINEER's approval.

### 3.2 TESTING

- A. Prior to testing all manholes, all sections of pipe shall be cleaned using an inflatable rubber ball of a size that will inflate to fit snugly into the pipe. The ball may, at the option of the CONTRACTOR, be used without a tag line; or a rope or cord may be fastened to the ball to enable the CONTRACTOR to know and control its position at all times. The ball shall be placed in the last clean out or manhole on the pipe to be cleaned, and water shall be introduced behind it. The ball shall pass through the pipe with only the force of the water impelling it. All debris flushed out ahead of the ball shall be removed at the first manhole where its presence is noted. In the event cemented or wedged debris, or a damaged pipe, stops the ball, the CONTRACTOR shall remove the obstruction and make any necessary repairs in a manner that is acceptable to the ENGINEER. Any alternate methods of cleaning sewers shall be submitted to the ENGINEER for approval, and shall not be used unless approved.
- B. For WORK involving placement of new sanitary sewer collection systems, all sections of pipe shall be tested for leakage using the Exfiltration Test for either air or water as specified hereafter; or, at the sole direction of the ENGINEER, when the normal water table is above the sewer throughout the section under test, the ENGINEER may permit use of the Infiltration Test procedure specified hereafter. Where leakage is in excess of the specified rate, the sewer shall be repaired by the CONTRACTOR as required to comply with the leakage test requirements. The ENGINEER may require the CONTRACTOR to repair obvious leaks even though the total length of the test section falls within the maximum allowable leakage for the test used.
- C. Defective pipe joints shall be repaired in a manner that the repaired pipe joint will have some flexibility and the effectiveness of the repair will not be affected by differential movement of the adjoining pipes. A "CSSI" or DFW/HPI non-shear coupling, as per Coupling for Dissimilar Sanitary Sewer Pipes Detail, or approved equal, will be acceptable in making such repairs.

**SECTION 02401 - SANITARY SEWER PIPE**

3.3 FILTRATION TEST (USING AIR)

- A. The CONTRACTOR shall furnish all facilities and personnel for conducting the test under the observation of the ENGINEER. The equipment and personnel shall be subject to the approval of the ENGINEER. Joints only may be tested in pipe 36 inches in diameter or larger, at the option of the CONTRACTOR.
- B. Immediately following the pipe cleaning, the pipe installation shall be tested with low pressure air. Air shall be slowly supplied to the plugged pipe installation until the internal air pressure reaches five pounds per square inch greater than the average back pressure of any ground water that may submerge the pipe. At least two minutes shall be allowed for temperature stabilization before proceeding further.
- C. The pipeline shall be considered acceptable when tested at an average pressure of four psi greater than the average pressure of any ground water that may submerge the pipe if the section under test does not lose air at a rate greater than 0.0030 cubic feet per minute per square foot of internal surface.
- D. The requirements of this Specification shall be considered satisfied if the time required for the pressure to decrease from 4.5 psi to 3.5 psi above average ground water pressure is greater than that shown on the following table:

**TIME FOR PRESSURE TO DROP FROM  
4.5 TO 3.5 PSI ABOVE AVERAGE GROUND WATER PRESSURE**

<b>Pipe Diameter</b>	<b>Minutes</b>	<b>Seconds</b>
8 "	3	57
10"	4	43
12"	5	40
15"	7	5
18"	8	30
24"	11	20
30"	14	10

- E. For other sizes, determine test time using the following formula:  
$$T = 28.33 D$$
Where T = time in seconds  
D = pipe diameter in inches
- F. For pipes 36 inches in diameter, or larger, if individual joints are tested, they shall hold six psi air pressure over the average back pressure of any ground water for a minimum time of 15 seconds.
- G. Pressure gauges should be incremented in not more than one-half pound increments for accurate tests.
- H. Braces shall be required to hold plugs in place and to prevent the sudden release of the compressed air. Due to the large forces that could be exerted by an escaping plug during

## SECTION 02401 - SANITARY SEWER PIPE

the testing of the pipe, no one shall be allowed in the manholes in which plugs have been placed while tests are being conducted. The CONTRACTOR's testing equipment shall have a pressure relief device that will prohibit the pressure in the pipeline from exceeding ten pounds per square inch.

### 3.4 EXFILTRATION TEST (USING WATER)

- A. Where groundwater is below the pipe to be tested, a minimum of head of eight feet of water above the crown at the upper end of the test section shall be maintained for a period of four hours, during which time it will be presumed that full absorption of the pipe body has taken place, and thereafter for a further period of one hour for the actual test of leakage. During this one hour period, the measured loss shall not exceed the rate given below:

Type of Pipe	Allowable Exfiltration Rate
PVC	$E = 0.0004 DL$
Ductile Iron	$E = 0.00008 DL$

E = Allowable leakage in gallons per hour

D = Nominal inside diameter of pipe in inches

L = Length of pipe being tested in feet

- B. Where groundwater is above any pipe to be tested, the minimum head of the test will be raised to provide an elevation head of eight feet above the groundwater.
- C. The maximum length of sewer in any test section shall be 500 feet.

### 3.5 INFILTRATION TEST

- A. Infiltration testing may be allowed at the ENGINEER's option when the natural ground water table is above the crown of the higher end of the test section and the external water pressure exerted on the pipe is equivalent to the exfiltration test. The maximum allowable limit for infiltration shall be as determined by the formulas defined in the above section Exfiltration Test (Using Water).

**END OF SECTION**



## **SECTION 02502 – STORM SEWER MANHOLES, INLETS, AND CATCH BASINS**

### **PART 1 – GENERAL**

#### **1.1 DESCRIPTION.**

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing manholes, inlets, and catch basins as shown on the Drawings and the Details.

#### **1.2 SUBMITTALS**

- A. Manholes: Shop Drawings showing method of construction and reinforcement, invert elevations, and overall dimensions.
- B. Frames and Grates: Catalogue cuts and materials certification.
- C. Oil Water Separator installation and maintenance instructions.
- D. Joint Mortar mix design

### **PART 2 – PRODUCTS**

#### **2.1 JOINT MORTAR**

- A Joint mortar shall be non-shrink-type, and shall consist of one part Portland cement and two parts approved sand with water as necessary to obtain the required consistency. Mortar shall be used within 30 minutes after its preparation. If mortar is submerged and cannot be kept dry until cured, a substitute approved by the ENGINEER shall be used.

#### **2.2 FRAMES, GRATES, COVERS, AND LADDER RUNGS**

- A. Unless otherwise specified in the plans, frames, grates, covers and ladder rungs shall conform to the plan dimensions and to the following Specification requirements for the designated materials:
  - 1. All frames, grates, and covers shall be ductile iron, conforming to ASTM A 48, Class 30, and shall be designed for heavy duty traffic.
  - 2. Carbon-steel castings shall conform to the requirements of AASHTO M 103. Grade shall be optional unless otherwise designated.
  - 3. All manhole covers shall have the words “STORM DRAIN” cast into the top in letters approximately three inches high.
  - 4. Structural steel shall conform to the requirements of AASHTO M 183.
  - 5. Manhole steps shall be constructed of polypropylene conforming to ASTM D 4101 and shall meet current state and federal safety standards.
  - 6. Galvanizing, where specified for these units, shall conform to the requirements of AASHTO M 111.
  - 7. Malleable iron castings shall conform to the requirements of ASTM A 47. Grade shall be optional unless otherwise designated.

## **SECTION 02502 – STORM SEWER MANHOLES, INLETS, AND CATCH BASINS**

### **2.3 REINFORCING STEEL**

- A. Reinforcing steel shall conform to the following applicable requirements:
- |                                  |                                    |
|----------------------------------|------------------------------------|
| Deformed Billet-Steel Bars       | AASHTO M 31 (ASTM A 615, grade 60) |
| Welded Steel Wire Fabric         | AASHTO M 55 (ASTM A 185)           |
| Cold-Drawn Steel Wire            | AASHTO M 32 (ASTM A 82)            |
| Fabricated Steel Bar or Rod Mats | AASHTO M 54 (ASTM A 184)           |

### **2.4 PRECAST CONCRETE UNITS**

- A. Precast concrete units shall conform to the requirements of AASHTO M 199, except that the absorption test will not be required.
- B. Cracks in units will be cause for rejection. Honeycombed or patched areas in excess of 30 cumulative square inches will be cause for rejection.
- C. Concrete shall conform to Section 03302 – Concrete Structures.
- D. Manhole steps shall meet current state and federal safety standards.

### **2.5 OIL WATER SEPARATOR**

- A. Oil Water Separator shall be Stormceptor STC 450i w/ top inlet modifications or approved equal

## **PART 3 – EXECUTION**

### **3.1 CONSTRUCTION**

- A. Concrete construction shall conform to the requirements of Section 03302 – Concrete Structures.
- B. Welding shall be done in accordance with the best modern practice and the applicable requirements of AWS D1.1 except as modified by AASHTO “Standard Specifications for Welding of Structural Steel Highway Bridges.”
- C. Metal frames shall be set in full mortar bed.
- D. Manholes and catch basins shall be constructed in accordance with the Drawings and Standard Details. There shall be a minimum 16 inch catch constructed in the invert of the manholes or catch basins, unless otherwise specified. After the mortar is set, holding the pipe in place, the pipe is to be cut off evenly so that neither more than two inches, nor less than one inch, of the pipe protrudes into the manhole or catch basin.
- E. When a pipe enters the manhole through a wall of a precast unit, the CONTRACTOR shall perform the cutting of the concrete and steel reinforcement in a manner that will not

## **SECTION 02502 – STORM SEWER MANHOLES, INLETS, AND CATCH BASINS**

loosen the reinforcement in the wall. The steel reinforcement shall be cut flush with the wall face. All joints and openings cut in the walls shall be grouted.

- F. Where indicated on the Drawings, a stub shall be provided for future connections to the manhole. The stub shall be sized and positioned as indicated. The end of the stub shall be stopped with a wooden plug, concrete biscuit, or other adequate methods to prevent water, earth, or other substances from entering pipe.
- G. In case of poured-in-place manhole construction, if the CONTRACTOR elects to accomplish the manhole construction utilizing more than one continuous concrete pour, a keyed construction joint shall be used. These manholes shall have poured-in-place bases.
- H. Existing storm flow shall not be impeded during construction.
- I. Excavation, bedding and backfilling shall conform to the requirements of Section 02203 – Trenching.
- J. Manhole pipe connections shall be made as shown on the Drawings and as required by the manufacturer's recommendations. A snug, watertight seal shall be provided for each pipe connection.

**END OF SECTION**

## SECTION 02601 – WATER PIPE

### PART 1 – GENERAL

#### 1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing buried water pipe and fittings, thrust blocks, tie rods, electrical continuity, disinfection and testing. The CONTRACTOR shall install the water pipe and fittings to the horizontal and vertical alignment shown on the Drawings and shall complete all associated WORK described in this Section.

#### 1.2 SUBMITTALS

- A. Water Pipe: Material certifications.

### PART 2 – PRODUCTS

#### 2.1 PIPE

- A. Water pipe shall be ductile-iron pipe (DIP) conforming to the requirements of AWWA C151, with cement mortar lining conforming to the requirements of AWWA C104. Standard Thickness Class 50 pipe shall be used unless otherwise shown on the Drawings. Water pipe shall have an exterior bituminous coating conforming to the requirements of AWWA C110. All water pipe shall be clearly marked with the manufacturer's name, type, class and/or thickness as applicable. Lettering shall be legible and permanent under normal conditions of handling and storage.

#### 2.2 JOINTS

- A. Unless otherwise shown on the Drawings or as specified below, pipe joints shall be push-on rubber gasket type conforming to the requirements of AWWA C111.
- B. Restrained joint water pipe shall be U.S. Pipe TR FLEX, U.S. Pipe field Loc Gasket, EBBA IRON "Mega-lug System," Griffin Snap Lock, Pacific State Lock Mechanical type, or approved equal. Restrained push-on joints for pipe shall be designed for a water working pressure of 250 psi and shall be capable of being deflected a minimum of 3° per joint, for pipe sizes through 18 inches, after assembly.

#### 2.3 FITTINGS

- A. Fittings for all water pipe and restrained joint water pipe shall be U.S. Pipe TR FLEX, push-on gasket fittings compatible with U.S. Pipe Field Loc Gasket, mechanical joint fittings with EBBA IRON "Mega-lug System" Griffin Snap Lock, Pacific State Lock Mechanical Type, or approved equal.
- B. For connecting to existing water mains, the CONTRACTOR shall use a mechanical joint tee and a mechanical joint cutting-in-sleeve similar to Clow F-1220 or Mueller H-843, or a cast iron coupling similar to Rockwell 431, or approved equal. The length of all sleeves and couplings shall equal or exceed the diameter of the pipe.

## SECTION 02601 – WATER PIPE

- C. All valve clusters consisting of a tee and one or more valves, including fire hydrant legs, shall be monolithically restrained with EBBA Iron “Mega-lug System,” or approved equal.

### 2.4 LUBRICANT

- A. The lubricant shall be suitable, and acceptable by the manufacturer and the CBJ Water Utility for lubricating the parts of the joint for assembly. The lubricant shall be non-toxic, "industrial food grade", shall not support the growth of bacteria, and shall have no deteriorating effects on the gasket material. It shall not impart taste or odor to the water in a pipe that has been flushed in accordance with AWWA C601, "Standard for Disinfecting Water Mains". The lubricant containers shall be labeled with the trade name or trademark and the pipe manufacturer's name where applicable."

### 2.5 THAW WIRE

- A. Thaw wire and continuity straps shall be No. 2 copper wire, stranded, with THW insulation or equal. Exothermic welding to attach continuity straps on DIP and fittings shall be “Cadweld” or approved equal and coated with bituminous coating.

### 2.6 UNDERGROUND MARKING TAPE

- A. Underground marking tape shall be blue, six inch wide, four mil thick, polyethylene tape with black lettering with the following wording: “Caution: Waterline Buried Below.” Marking tape shall be installed 12 inches above the top of all water pipe.

### 2.7 TIE RODS

- A. Tie rods shall be threaded black iron or mild steel with a 12-mil minimum asphaltic coating and shall be located symmetrically around the perimeter of the pipe using anchorage lugs of standard manufacture for attachment where required. Unless otherwise shown on the Drawings, the number and size of the rods shall be as shown on the table below:

PIPE SIZE	TIE ROD SIZE	NO. OF RODS
4” – 10”	¾”	2
12” – 16”	¾”	4
18” – 20”	¾”	6
22”	1”	4
24”	1”	6

### 2.8 HDPE PIPE, FITTINGS AND JOINTS

- A. HDPE pipe shall be PE3408 with a minimum pressure rating of 150 p.s.i and SDR 11. All HDPE fittings shall be fabricated or molded where shown in the Plans, with a minimum pressure rating of 150 p.s.i.. HDPE pipe and fittings shall be connected with butt fused or appropriately flanged joints, and comply with all relevant manufacturer recommendations.

## SECTION 02601 – WATER PIPE

### 2.9 CONCRETE

- A. Concrete for thrust blocks shall conform to Section 03302 –Concrete Structures.

### 2.10 TEMPORARY WATER SYSTEM

- A. All piping, including hoses used for water service, shall be NSF rated.

## PART 3 – EXECUTION

### 3.1 GENERAL

- A. The CONTRACTOR shall preserve and protect all existing utilities and other facilities including but not limited to: telephone, television, electrical, water and sewer utilities, surface or storm drainage, highway or street signs, mail boxes, and survey monuments. The CONTRACTOR shall immediately repair or replace utilities or other facilities damaged during construction. The CONTRACTOR shall support and protect any underground utility conduits, pipes, or service lines where they cross the trench.
- B. The CONTRACTOR shall give at least 24 hours notice to the City of Wrangell Public Works Utility Divisions and the Harbor Master prior to:
  - 1. interruption of water service in any area; or
  - 2. use of water from any fire hydrant.

Any water service disruption shall be restored as soon as possible.

### 3.2 INSTALLATION

- A. Water pipe shall be installed in accordance with the manufacturer’s printed specifications and instructions, and in conformance with AWWA C151.
- B. The water pipe shall be handled carefully to prevent damage to the pipe, pipe lining, or coating. Water pipe and fittings shall be loaded and unloaded using hoists and slings to avoid shock or damage, and under no circumstances shall they be dropped, skidded, or rolled. If any part of the coating or lining is damaged, repair thereof shall be made in a manner satisfactory to the ENGINEER at the CONTRACTOR’s expense.
- C. All water pipe and fittings shall be inspected for defects. Damaged pipe will be rejected and the CONTRACTOR shall immediately place all damaged pipe apart from the undamaged and shall remove the damaged pipe from the site within 24 hours.
- D. Whenever it becomes necessary to cut a length of water pipe, the cut shall be made by abrasive saw or by special pipe cutter.
- E. All pipe ends shall be square with the longitudinal axis of the water pipe and shall be reamed and smoothed to assure a good connection.

## SECTION 02601 – WATER PIPE

- F. The water pipe shall be laid to the horizontal and vertical alignment shown on the Drawings. A minimum five foot cover shall be maintained from finish grade to top of water pipe, unless otherwise shown on the Drawings. Fittings shall be installed at the location shown on the Drawings.
- G. To prevent dirt and other foreign material from entering the pipe and fittings during handling and installation, the open end of the pipe shall be protected by a water-tight plug at all times except when joining the next section of pipe.
- H. Under no circumstances shall pipe deflections, either horizontal or vertical, exceed the manufacturer's printed recommendations. Where deflections would exceed the manufacturer's recommendations, fittings shall be used.
- I. Vertical deflections to avoid obstructions that exceed allowable water pipe joint deflections shall be accomplished by the use of fittings and either joint restraints or vertical thrust blocking conforming to the Standard Details. Additional fittings to those indicated on the Drawings will be required to accomplish these vertical deflections.
- J. Concrete thrust blocks shall be furnished and installed in accordance with the Drawings and Details.
- K. Pressurized water pipe ends shall be plugged and thrust blocks installed. Volume and bearing area of thrust blocks for end plugs shall be equal to applicable standards for bends greater than 45°.
- L. Existing water pipes and appurtenances to be removed or abandoned shall be as designated on the Drawings or directed by the ENGINEER. Abandoned water services shall be plugged at the cut ends. Abandoned water pipes shall be removed as shown on the Drawings, or mechanically plugged if not required to be removed.
- M. All pipe fittings shall be restrained with EBBA Iron "Megalug System," or approved equal.
- N. All joints within 50 feet of tees or bends equal to or greater than 45° shall be restrained joints.
- O. Continuous water services shall be provided for all structures, except for interruptions necessary for connection of temporary or new piping to the existing service or mainline piping.
- P. The CONTRACTOR is responsible for maintaining continuous water service at volume and pressure to match existing to all structures, with either existing, temporary or new piping, except as provided in this Section.

### 2.3 FLUSHING, TESTING AND DISINFECTION

## SECTION 02601 – WATER PIPE

- A. Prior to acceptance, the CONTRACTOR shall “Open-Bore” flush the water pipe then perform hydrostatic tests, electrical continuity tests, and disinfection and coliform tests. Testing may be done in any sequence. However, in the event the disinfection, coliform and continuity tests have been performed and repairs are made to the water pipe system in order to pass the hydrostatic test, all previous tests and the “Open-Bore” flushing shall be repeated to the satisfaction of the ENGINEER.

### 2.4 OPEN-BORE FLUSHING

- A. Open bore flushing is required of all installed water pipes to remove any foreign matter. The CONTRACTOR shall furnish, install and remove all pumps, fittings and pipes necessary to perform the flushing; shall provide all additional excavation and backfill; and shall dispose of all water and debris flushed from the water pipe. Flushing through fire hydrants, reduced outlets or fittings shall not be permitted unless specifically authorized in writing by the ENGINEER. The CONTRACTOR shall notify the ENGINEER, in writing, 48 hours in advance of any flushing operation. All flushing shall be done between the hours of 1:00 a.m., and 5:00 a.m., unless otherwise authorized by the ENGINEER. A flushing scheme and schedule shall be submitted by the CONTRACTOR for review and approval by the ENGINEER prior to flushing. The schedule for flushing must be approved by the Public Works Division. The CONTRACTOR shall be responsible for obtaining any permits necessary for flushing operations.

### 2.5 HYDROSTATIC TESTING

- A. Hydrostatic testing will be conducted in the presence of the ENGINEER on newly installed water pipes after “Open-Bore” flushing, in accordance with the requirements of AWWA C600 and as stated hereafter. The CONTRACTOR shall furnish all assistance, equipment, labor, materials, and supplies necessary to complete the test to the satisfaction of the ENGINEER. The CONTRACTOR shall suitably valve-off or plug the outlet to existing or previously-tested water pipe prior to performing the required hydrostatic test. Prior to testing, all air shall be expelled from the water pipe. If permanent air vents are not available to accommodate testing, the CONTRACTOR shall install corporation stops and blow-off lines so the air can be expelled as the line is filled with water.
- B. Pressure Testing
  1. The hydrostatic pressure for main line pipe shall be a minimum of 150 psi or 1 ½ times the operating pressure of the water pipe (measured at the highest elevation of the newly-installed water pipe), whichever is greater, unless otherwise directed by the ENGINEER. Acceptance pressure testing shall be done with all service lines installed, corporation stops open, and pressure against the closed curb stops. The duration of each hydrostatic pressure test on main line pipe shall be one hour. Pumping will cease after the required test pressure has been reached. If the pressure remains constant for one hour without additional pumping, or pressure drop is less than five psi, that section of water pipe is acceptable.
  2. The hydrostatic pressure for fire line testing shall be a minimum of 200 psi for two (2) hours as defined by National Fire Protection Association (NFPA) 24. Acceptance pressure testing shall be done with all service lines installed,



## SECTION 02601 – WATER PIPE

corporation stops open, and pressure against the closed curb stops. Pumping will cease after the required test pressure has been reached. If the pressure remains constant for two hours without additional pumping, or pressure drop is less than five psi, that section of water pipe is acceptable.

- C. If the pressure drops five (5) psi or more during the initial one hour hydrostatic pressure test, the CONTRACTOR shall conduct a leakage test. Leakage shall be determined by measuring “make-up” water necessary to restore the specified test pressure. The quantity of water lost from the water pipe shall not exceed the number of gallons per hour as determined by the following formula:

$$L = \frac{ND(P)^{0.5}}{7400}$$

L = Allowable leakage in gallons per hour

N = Summation of mechanical and push-on joints in length of water pipe tested

D = Diameter of water pipe in inches

P = Test pressure in pounds per square inch

- D. Should the tested section fail to meet the pressure test as specified, the CONTRACTOR shall locate and repair the defects and then retest the water pipe as specified above. Any specific leakage point detected shall be corrected by the CONTRACTOR to the satisfaction of the ENGINEER regardless of the allowable leakage specified above.
- E. All tests shall be made with the auxiliary gate valves open and pressure against the hydrant. After the hydrostatic test has been successfully completed, each valve shall be tested by closing in turn and relieving the pressure beyond. This test of the valves will be acceptable if there is no immediate loss of pressure on the gauge when the pressure comes against the valve being checked. The CONTRACTOR shall verify that the pressure differential across the valve does not exceed the rated working pressure of the valve.
- F. Sections to be tested shall be limited to 1,500 feet, unless otherwise approved in writing by the ENGINEER.
- G. Defective materials or poor quality of WORK, discovered as a result of the hydrostatic tests, shall be replaced by the CONTRACTOR. Whenever it is necessary to replace defective material or correct the workmanship, the hydrostatic test shall be repeated until a satisfactory test is obtained.
- H. The ENGINEER shall be present for all hydrostatic and leakage tests. The CONTRACTOR shall notify the ENGINEER at least 24 hours prior to any test and shall notify the ENGINEER at least two hours in advance of the scheduled time if the test is to be cancelled or postponed.
- I. After completion of testing, all test and air vent pipe shall be removed and the corporation stop closed at the water pipe, in the presence of the ENGINEER.

### 2.6 DISINFECTION

**SECTION 02601 – WATER PIPE**

- A. Disinfection by chlorination of all new water pipe shall be completed and a satisfactory bacteriological report obtained prior to placing the pipe in service. “Open-bore” flushing shall be completed before chlorination is begun.
- B. Chlorine shall be applied by one of the following methods:
  - 1. liquid chlorine gas-water mixture;
  - 2. direct chlorine gas feed; or
  - 3. hypochlorite commercial products such as HTH, Perchlören, Macho-chlor, or approved equal.

The chlorinating agent shall be applied at the beginning of the section adjacent to the feeder connection, insuring treatment of the entire water pipe. Water shall be fed slowly into the new water pipe with chlorine applied in amounts to produce a dosage of 50 ppm. Application of the chlorine solution shall continue until the required residual of not less than 50 ppm free chlorine is evident at all extremities of the newly constructed line.

- C. The chlorine gas-water mixture shall be applied by means of a solution-feed chlorinating device. Chlorine gas shall be fed directly from a chlorine cylinder equipped with a suitable device for regulating the rate of flow and the effective diffusion of gas within the water pipe. Hypochlorite products shall be placed or injected into the water pipe. During the chlorination process, all intermediate valves and accessories shall be operated. Valves shall be manipulated so that the strong chlorine solution in the water pipe being treated will not flow back into the pipe supplying the water.
- D. The following table is to be used as a guide for chlorinating pipes by the calcium hypochlorite and water mixture method. The given dosage per 100 feet results in a chlorine solution of 40 to 50 ppm. This dosage takes into account that CONTRACTORS most frequently use granular HTH, which is 65% pure. If another chlorinating agent is used, the dosage must be adjusted.

<b>PIPE DIAMETER</b>	<b>DOSAGE PER 100 FEET</b>
4”	.60 oz.
6”	1.35 oz.
8”	2.75 oz.
10”	4.30 oz.
12”	6.19 oz.
16”	11.00 oz.
20”	17.00 oz.

- E. A residual of not less than 50 ppm free chlorine shall be produced in all parts of the water pipe. After 24 hours detention there shall be a minimum free chlorine residual of 25 ppm in all parts of the water pipe. This residual shall then be neutralized in the pipe by injecting an approved reducing agent such as sulfur dioxide, sodium bisulfate, sodium sulfite or sodium thiosulfate.
- F. After the water pipe system has been thoroughly flushed, samples will be taken at representative locations in the system by the ENGINEER, placed in sterile bottles, and

## **SECTION 02601 – WATER PIPE**

submitted to an approved laboratory for bacteriological examination. The presence of bacteria in any sample shall be verified with a second sample at the same location. If verified, the pipe disinfection procedure shall be repeated and additional samples taken for bacteriological examination. Pipe disinfection shall be repeated, at the CONTRACTOR's expense, until satisfactory results are obtained. The first testing sequence will be paid for by the OWNER. Any further testing and sampling required due to insufficient disinfection (positive coliform tests) will be paid for by the CONTRACTOR.

- G. The water shall be flushed from the water pipe at its extremities, including all curb stops, until the replacement water chlorine residuals are equal to those of the permanent source of supply. The de-chlorinated water and water used for flushing shall be disposed of in a manner approved by the ENGINEER, and in conformance with current requirements of the Alaska Department of Fish and Game, and the Alaska Department of Environmental Conservation.

**END OF SECTION**

## SECTION 02602 - VALVES

### PART 1 – GENERAL

#### 1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing valves and valve boxes; thrust blocks; and for raising or lowering existing valve boxes to conform to the final grade, as shown on the Drawings and in conformance with the Details.

#### 1.2 SUBMITTALS

- A. Gate Valves: Catalogue cuts.
- B. Valve Boxes: Catalogue cuts.

### PART 2 – MATERIALS

#### 2.1 GATE VALVES

- A. Gate valves for water pipes 12 inches and smaller shall be of the iron body, non-rising bronze stem, resilient-seated wedge-type. Valve shall be American AVK Company, Kennedy, M & H, or Mueller and shall meet or exceed the requirements of AWWA C509 and the specific requirements outlined in these Specifications.
- B. Gate valves shall open counter-clockwise and be provided with two inch square wrench nuts, except that when installed within vault structures a hand wheel shall be provided for each valve.
- C. End connections shall be mechanical joint, unless otherwise indicated on the Drawings.
- D. All internal ferrous metal surfaces shall be fully coated, holiday free, to a minimum thickness of four mils with a two part thermosetting epoxy coating. Said coating shall be non-toxic, impart no taste to water, protect all seating and adjacent surfaces from corrosion and prevent buildup of scale or tuberculation.
- E. Gate valves, when attached to a restrained joint, shall have tie rods and one retainer gland for each joint. The size and number of tie rods shall conform to the requirements of Section 02601 – Water Pipe.
- F. The CONTRACTOR shall provide four detailed repair manuals for the gate valves supplied; and a letter of certification from the supplier verifying that all requirements of AWWA C509 and these Specifications have been met.
- G. The CONTRACTOR shall provide one standard packing kit for every group of ten (and fraction thereof) of each size of gate valve.

#### 2.2 VALVE BOXES

## SECTION 02602 - VALVES

- A. Valve boxes for valves four inches or larger shall be of cast iron and be not less than 5¼-inch diameter, with an extension piece adjustable for elevation and with a cover marked “Water” or “W.” The valve box shall be sufficient length to be adjusted and equal amount above and below the finished grade as shown on the Standard Details. Boxes shall be dipped in coal tar pitch. The valve box shall be Kejrival Pacific 940 B 18” (top section) and Kejrival Pacific D-24 (bottom section), or approved equal whose parts are demonstrated to be interchangeable with Kejrival Series.

### PART 3 – EXECUTION

#### 3.1 VALVES

- A. Valves shall be inspected upon delivery in the field in both open and closed positions prior to installation. Careful inspection shall be made for injury to the outer protective coatings. At all places where the coating has been ruptured or scraped off, the damaged area shall be cleaned to expose the iron base, and then re-coated with two or more field coats of approved protective coating.
- B. Valves shall be set on a firm base.
- C. Valves shall be installed, in an open position, in the vertical plane passing through the pipe axis, in conformance with the manufacturer’s recommendations and the AWWA Standards. Valve interiors shall be cleaned of all foreign matter.
- D. After installation, all valves shall be subjected to field-testing and disinfected as outlined in Section 02601 – Water Pipe. Should defects in design, materials, or quality of work appear during these tests, the CONTRACTOR shall remove and replace the valve, or correct such defects, with the least possible delay, to the satisfaction of the ENGINEER.
- E. All valve clusters consisting of a tee and one or more valves, including fire hydrant legs, shall be monolithically restrained with EBBA Iron “Mega-lug System” fittings, or approved equal. Each connecting pipe to the valve cluster or tee will be restrained to the cluster or tee.

#### 3.2 VALVE BOXES

- A. A valve box shall be installed over each valve, with the base section centered over the valve and resting on well-compacted backfill. The top section shall be set to allow equal movement of the telescoping section above and below finished grade, as shown on the Details, unless otherwise directed by the ENGINEER. The top of the base section shall be on line with the nut at the top of the valve stem and the entire assembly shall be perpendicular to the water pipe.

## **SECTION 02602 - VALVES**

### **3.3 ADJUST EXISTING VALVE BOXES**

- A. Adjust by raising or lowering to conform to the final grade, in accordance with the locations and details shown on the Drawings. The existing case iron valve box and cover shall be salvaged and reused. Where the valve box is of the adjustable-type construction, it shall be adjusted with adaptable extension pieces. Where the valve box is constructed with steel pipe, additional steel pipe shall be welded to the valve box to raise the cover; lowering shall be accomplished by cutting the existing steel pipe.
- B. Where the existing valve box is tilted and/or far enough off center on the valve nut to make valve operation difficult, the CONTRACTOR shall plumb and center the valve box over the valve nut prior to strengthening or placement of base course material.

**END OF SECTION**

## SECTION 02702 - CONSTRUCTION SURVEYING

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary to perform all surveying and staking necessary for the completion of the project in conformance with the plans and specifications, including all calculations required to accomplish the work.
- B. The WORK shall include the staking, referencing and all other actions as may be required to preserve or restore land monuments and property corners which are situated within the project area, and to establish monuments as shown on the plans.
- C. The WORK under this Section includes providing all labor, materials, tools and equipment necessary to perform all surveying and staking necessary for the completion of Excavation and Embankment in accordance with SECTION 02202.

#### 1.2 SUBMITTALS

- A. All information necessary for as-built plan production from actual measurements and observations made by the CONTRACTOR's own work force, including subcontractors.

### PART 2 - PRODUCTS (Not Used)

### PART 3 - EXECUTION

#### 3.1 CONSTRUCTION

- A. All surveying involving property lines or monuments shall be done by, or under the direction of, a Registered Land Surveyor licensed to practice in the State of Alaska.
- B. The OWNER will supply information relative to the approximate locations of monuments and corners, but final responsibility for locations, referencing, and restoration shall rest with the CONTRACTOR.
- C. In the event the CONTRACTOR does not replace the survey monuments and property corners disturbed by the CONTRACTOR's operations, the OWNER may, after first notifying the CONTRACTOR, replace the monuments in question and the cost of such replacements shall be deducted from payments to the CONTRACTOR.
- D. The CONTRACTOR shall provide the OWNER with a copy of all surveyor's notes, if requested by the ENGINEER, prior to each Pay Request, which payment for Pay Item No. 21, Construction Surveying, is increased from the previous Pay Request.
- E. The CONTRACTOR shall provide the OWNER with a copy of all surveyors' notes, prior to the request for final payment, and include the information on the record drawings.
- F. The CONTRACTOR shall obtain all information necessary for as-built plan production from actual measurements and observations made by the CONTRACTOR's own personnel, including Subcontractors, and submit this information to the ENGINEER.

## **SECTION 02702 - CONSTRUCTION SURVEYING**

- G. The CONTRACTOR shall use competent, qualified personnel and suitable equipment for the layout WORK required and shall furnish all stakes, templates, straightedges and other devices necessary for establishing, checking and maintaining the required points, lines and grades.
- H. The CONTRACTOR shall perform all staking necessary to delineate clearing and/or grubbing limits; all cross sections necessary for determination of excavation, embankment, including preliminary, intermediate and/or re-measure cross sections as may be required; all slope staking; all staking and all staking of culverts and drainage structures, including the necessary checking to establish the proper location and grade to best fit the conditions on site; the setting of such finishing stakes as may be required; the staking, referencing and other actions as may be required to preserve or restore land monuments and property corners; and all other staking necessary to complete the project.
- I. The CONTRACTOR's field books shall be available for inspection by the ENGINEER at any time.
- J. The ENGINEER may randomly spot-check the CONTRACTOR's surveys, staking, and computations at the ENGINEER's discretion. After the survey, or staking, has been completed, the CONTRACTOR shall provide the ENGINEER with a minimum of 72 hours notice prior to performing any WORK, and shall furnish the appropriate data as required to allow for such random spot-checking. The OWNER assumes no responsibility for the accuracy of the WORK.
- K. The ENGINEER may make minor adjustments in grades and locations of improvements based on the staking information provided by the CONTRACTOR. The CONTRACTOR shall adjust the grade stakes as required to accommodate minor changes at no additional cost to the OWNER.

**END OF SECTION**



## SECTION 02707 - CHAIN LINK FENCE

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing chain link fencing, as shown on the Drawings.

#### 1.2 SUBMITTALS

- A. Chain Link Fence: Material certifications.
- B. Gate Shop Drawings

### PART 2- PRODUCTS

#### 2.1 MATERIALS

- A. Fencing materials shall conform to AASHTO M 181 including fittings and hardware. Use 9 gauge fabric wire, 2-inch mesh. Sizes of posts, gate frames, rails and braces shall conform to the dimensions and weights shown on the Drawings. Portland cement concrete shall conform to Section 03301 – Structural Concrete.
- B. Post tops shall consist of ornamental tops. The post tops shall fit over the outside of the posts and shall exclude moisture from the tubular posts.
- C. Stretcher bars shall not be less than 3/16" by 3/4", and shall be of lengths one-inch less than the full height of the fabric with which they are to be used. The stretcher bars shall be arranged for attaching the fabric to all terminal posts by threading through the fabric, by bands, or by other positive mechanical means. One stretcher bar shall be provided for each gate, and end post and two for each corner and pull post.
- D. Ties or clips of adequate strength shall be provided in sufficient number for attaching the fabric and stretcher bars to all terminal posts at intervals not exceeding 15 inches.
- E. Bands or clips of adequate strength shall be provided in sufficient number for attaching the fabric and stretcher bars to all terminal posts at intervals not exceeding 15 inches.
- F. Posts. Interior posts shall be of the length required for a footing depth of three feet. End posts shall be of the length required for a footing depth of four feet. All posts shall be tubular.
- G. Reinforcing Wires. Top reinforcing wire shall be provided. The reinforcing wires shall be of coiled spring wire not less than seven gauge plus, or minus 0.005-inch in diameter. Ties or clips shall be provided for attaching each wire to the fabric at intervals not exceeding two feet.
- H. Barbed Wire. Meet AASHTO M280, 12.5 gauge wire, with 4-point round 14 gauge barbs spaced at 5 inch, Class 1 coating.

## SECTION 02707 - CHAIN LINK FENCE

- I. Portland cement concrete shall conform to Section 03302 - Concrete Structures.
- J. Mesh and wire size shall be two-inch mesh, 0.148-inch in diameter.

### PART 3 - EXECUTION

#### 3.1 GENERAL

- A. All trees, brush, and other obstacles that would interfere with the construction of the fence shall be removed and disposed of as directed by the ENGINEER.
- B. Prior to installing the fence, the existing ground along the line of the fence location shall be graded to a smooth, uniform surface, to the extent that no abrupt changes in grade exist between adjacent fence posts.
- C. The CONTRACTOR shall stake all fences and gates. After staking is complete, the CONTRACTOR shall complete a walk-through with the OWNER and ENGINEER. The OWNER and ENGINEER shall make minor adjustments and changes at no additional cost to the OWNER.
- D. All posts shall be set in Portland cement concrete footings. The tops of the footings shall be level with the ground, shall be crowned to provide drainage, and shall be troweled smooth. Concrete footings shall be eight inch diameter. The footings shall be allowed to cure for a period of at least seven days before any stress is applied.
- E. The posts shall be set vertical and shall be of uniform and equal height above the ground, with a maximum horizontal spacing of ten feet, center-to-center. The chain link fabric shall be fastened to the top reinforcing wire, and the lower edge of the fabric shall be fastened to the bottom tension wire.
- F. For fabric heights of six feet or more, a 1 1/4" inch top rail shall be provided. Top rails for fabric heights less than six feet, and intermediate brace rails shall be provided, if shown on the Drawings.
- G. At each location where an electric transmission, distribution or secondary line crosses any of the types of fences covered by these Specifications, the CONTRACTOR shall furnish and install a ground rod and connection to the fence conforming to the requirements of Section Nine of the National Electric Safety Code.
- H. Ground rods and connectors shall be placed at minimum intervals of 400 feet in length, one ground rod with connection to the fence shall be required.
- I. Grading. The fence shall be constructed to follow a smooth profile. Nowhere, however, throughout the fence length shall be the distance between the ground surface and the bottom tension wire be greater than four inches, nor less than two inches. Where excavation is necessary to meet this requirement, the ground will be graded level not less than one foot on either side of the fence. Grading for all specific conditions shall be such that water will not be allowed to pond in the immediate area of the fence.

## **SECTION 02707 - CHAIN LINK FENCE**

- J. General Appearance. All runs of fence shall present the same general appearance. The product of one manufacturer only will be accepted, except for items which do not influence the appearance of the completed fence. The fence shall be the product of a manufacturer who has demonstrated by actual installations of a similar nature, that its product is the type required. No used, re-rolled, or open seam steel will be permitted in posts, gate frames, rails or braces.

**END OF SECTION**

## SECTION 02714 – GEOTEXTILE REINFORCEMENT

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. The WORK under this Section includes providing all labor, material, tools, and equipment necessary for furnishing and installing geotextile reinforcement in accordance with the plans or as directed by the ENGINEER.

#### 1.2 SUBMITTALS

- A. Geotextile reinforcement catalog cuts and product data sheets.

### PART 2 - PRODUCTS

#### 2.1 GEOTEXTILE REINFORCEMENT

- A. Geotextile reinforcement used for fill reinforcement shall be AMOCO 2044 woven geotextile reinforcement or approved equal. The geotextile rolls shall be tagged showing the number of square yards contained in each roll. During shipment, storage and placement, the geotextile shall be protected from direct sunlight, moisture, ultraviolet rays, temperatures greater than 140°F, mud, dirt, dust and debris.

- B. Wall reinforcement geotextile shall meet the following physical and hydraulic properties:

ASTM D-4632 Grab Tensile Strength	600/500 lbs*
ASTM D-4632 Grab Tensile Elongation	15%
ASTM D-4595 Wide Width Tensile	4,800 lbs/ft
ASTM D-4595 Wide Width Elongation	18%/8%*
ASTM D-3786 Mullen Burst	1,350 psi
ASTM D-4833 Puncture	140 lbs
ASTM D-4533 Trapezoid Tear	250 lbs
ASTM D-4355 UV Resistance	80%
ASTM D-4751 Apparent Opening Size	#30 U.S. Standard Sieve
ASTM D-4491 Permittivity	0.15 (Sec-1), minimum
ASTM D-4491 Flow Rate	10 gal./min./ft <sup>2</sup>

- 2.2 SEAMS. Seams, when required, shall be sewn with thread of material meeting the chemical requirements given above for plastic yarn. The sheets for Geotextile Reinforcement shall be sewn together at the factory or another approved location to form sections not less than two feet wide. Seams shall be tested in accordance with ASTM D 1682, using one-inch square jaws and twelve inches per minute constant rate of traverse. The strengths shall be not less than ninety pounds in any principal direction.

- 2.3 ACCEPTANCE REQUIREMENTS. All brands of plastic Geotextile Reinforcement and all seams to be used will be accepted on the basis of a certification. The CONTRACTOR shall furnish the ENGINEER a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the reinforcement. The mill certificate or affidavit shall attest that the reinforcement meets the chemical, physical, and manufacturing requirements stated in this section.

## **SECTION 02714 – GEOTEXTILE REINFORCEMENT**

- 2.4 SHIPMENT AND STORAGE. During all periods of shipment and storage, the reinforcement shall be protected from direct sunlight, ultraviolet rays, temperatures greater than 140° F, mud, dirt, dust, and debris. The reinforcement shall be wrapped in a heavy-duty protective covering.

### **PART 3 - EXECUTION**

#### **3.1 CONSTRUCTION**

- A. Geotextile reinforcement shall be placed in the manner and at the locations shown on the plans or as directed by the ENGINEER. At the time of installation, reinforcement shall be rejected if it has defects, rips, holes, flaws, deterioration, or damage incurred during manufacture, transportation, or storage.
- B. The surface upon which the Geotextile Reinforcement is to be placed shall be free of projections or depressions, and rocks, roots, and other sharp objects which may cause the Geotextile Reinforcement to be punctured. The Geotextile Reinforcement shall be placed without stretching and shall lie smoothly in contact with the soil or sawdust surface. When overlapping of strips is necessary, the joints shall be overlapped a minimum of three feet. End overlaps shall be made in the direction of flow.
- C. The Geotextile reinforcement shall be protected at all times during construction from contamination or from damage during its installation or during placement of subsequent covering; contaminated or damaged reinforcement shall be replaced at the CONTRACTOR's expense, or if the ENGINEER permits, torn reinforcement may be patched. The aggregate material shall be cleaned from the reinforcement, and the torn area shall be overlain with reinforcement with a minimum three-foot overlap around the edges of the torn area. Care shall be taken that the patch remains in place when material is placed over the affected area.
- D. Following placement of the Geotextile reinforcement on the prepared surface, material of the type shown on the plans shall be carefully placed to prevent tearing, ripping or moving the reinforcement from its design location. At no time shall equipment operate on the unprotected reinforcement. The material shall be spread in the direction of the reinforcement overlap. Special care shall be taken to maintain a proper overlap and reinforcement continuity.

**END OF SECTION**

**SECTION 03301 - STRUCTURAL CONCRETE**

**PART 1 - GENERAL**

1.1 DESCRIPTION. The WORK under this Section includes providing all labor, materials, tools and equipment necessary for furnishing and installing Portland cement concrete for structures in conformance with the Drawings and Specifications.

**PART 2 - PRODUCTS**

2.1 PORTLAND CEMENT

- A. Portland cement shall conform to the requirements of AASHTO M 85.
- B. Unless otherwise permitted by the ENGINEER, the product of only one mill of any one brand and type of Portland cement shall be used on the Project.

2.2 FINE AGGREGATE. Fine aggregate for Portland cement concrete shall conform to the requirements of AASHTO M 6 with the following exceptions:

Delete section on deleterious substances and substitute the following:

The amount of deleterious substances shall not exceed the following limits:

- Friable particles percent by weight .....5 max.
- Coal and Lignite, percent by weight using a liquid of 1.95 specific gravity. Only material that is brownish- black shall be considered as coal or lignite .....0.5 max.
- Material passing the No. 200 sieve, percent by weight .....3.0 max.

Delete paragraph 4.2 of AASHTO M 6.

2.3 COARSE AGGREGATE. Coarse aggregate for Portland cement concrete shall conform to the requirements of AASHTO M 80, Class A, with the following exceptions:

Delete section on deleterious substances and substitute the following:

The amount of deleterious substances shall not exceed the following limits:

- Coal and Lignite, percent by weight (only material that is brownish-black or black shall be considered coal or lignite.)..... 1.0 max.
- Material passing the No. 200 sieve ..... 1.0 max.
- Thin-elongated pieces, percent by weight.  
(Length greater than 5 times average thickness)..... 15 max.
- Sticks and roots, percent by weight ..... 0.10 max.
- Friable Particles, percent by weight..... 0.25 max.
- Maximum loss from AASHTO T 96 shall be 50 percent.
- Maximum loss from AASHTO T 104 shall be 12 percent.

Add the following: AASHTO T-104 shall be performed using sodium sulfate solution.

2.4 JOINT FILLERS. Joint filler, of the type designated in the contract, shall conform to the following:

- A. Poured filler shall conform to AASHTO M 173 or AASHTO M 282 as specified.

## SECTION 03301 - STRUCTURAL CONCRETE

- B. Preformed fillers shall conform to AASHTO M 33 for bituminous type; AASHTO M 153 for sponge rubber (type I), cork (type II), and self-expanding cork (type III; AASHTO M 213 for non-extruding and resilient bituminous types and ASHTO M 220 for preformed elastomeric types as specified. The filler shall be punched to admit the dowels where called for on the plans. Joint filler shall be furnished in a single piece for the depth and width required for the joint unless otherwise authorized by the ENGINEER. When more than one piece is authorized for a joint, the abutting ends shall be fastened securely, and held accurately to shape, by stapling or other positive fastening satisfactory to the ENGINEER.
- C. Foam filler shall be expanded polystyrene filler having a compressive strength of not less than 10 p.s.i..
- D. Hot-poured sealants for concrete and asphaltic pavements shall conform to ASTM D 3405.
- E. Hot-poured elastomeric type sealant for concrete pavements shall conform to ASTM D 3406.
- F. Cold-poured silicone type sealant for concrete pavements shall conform to Federal Specification TT-S-1543, Class A. The sealant shall be a one part, low-modulus silicone rubber with an ultimate elongation of 1,200 percent.

### 2.5 CURING MATERIAL

- A. Curing material shall conform to the following requirements as specified:
  - 1. Burlap Cloth made from Jute Kenaf AASHTO M 182
  - 2. Sheet Material for Curing Concrete AASHTO M 171
  - 3. Liquid Membrane-Forming Compounds AASHTO M 148 for Curing Concrete, Type I
- B. The requirements specified in AASHTO M 148 covering "Liquid Membrane-Forming Compounds for Curing Concrete" are modified by adding the following:

Liquid membrane-forming compounds utilizing linseed oil shall not be used.

- 2.6 AIR ENTRAINING AGENTS. Air-entraining admixtures shall conform to the requirements of AASHTO M 154.
- 2.7 MIXING WATER. Unless otherwise permitted in writing by the ENGINEER, all water shall be obtained from the Borough's potable water system.
- 2.8 REINFORCING STEEL. Unless specified otherwise, reinforcing shall conform to AASHTO M 31, and be of the grade designated on the plans or in the Specifications. Welded wire fabric shall conform to AASHTO M 55. Epoxy coated reinforcing bars shall conform to AASHTO M 284. Submit material certifications for all reinforcing steel.

## SECTION 03301 - STRUCTURAL CONCRETE

### 2.9 SHIPPING AND STORAGE OF CEMENT

- A. Cement may be shipped from pretested approved bins. The cement shall be well protected from rain and moisture, and any cement damaged by moisture or which fails to meet any of the specified requirements shall be rejected and removed from the WORK.
- B. Cement stored by the CONTRACTOR for a period longer than 60 days in other than sealed bins or silos shall be retested before being used. Cement of different brands, types, or from different mills shall be stored separately.

### 2.10 COMPOSITION OF CONCRETE

- A. All Portland cement concrete shall be ready-mix, provided by an approved plant regularly engaged in the production of concrete, unless otherwise authorized in writing by the ENGINEER. Ready-mix concrete shall conform to the requirements of AASHTO M 157.
- B. The CONTRACTOR shall furnish the mix design to the ENGINEER for approval. The mix design shall be suitable for its intended use. Concrete shall be designed using an absolute volume analysis. The CONTRACTOR shall be responsible for having each mix laboratory tested. Prior to the start of production of any mix design, the CONTRACTOR shall submit test results and certifications for all materials, detailed mix design data and results of laboratory tests to the ENGINEER for approval. Approval by the ENGINEER will be based on apparent conformity to these specifications. It shall remain the CONTRACTOR's responsibility during production to produce concrete conforming to the mix design and the minimum acceptance criteria in the contract. When requested by the ENGINEER, the CONTRACTOR shall submit samples of all materials for verification testing. Production shall not commence until the mix design is approved by the ENGINEER.
- C. Unless otherwise specified the design mix shall meet the following:
  - Minimum cement content 6 1/2 sacks (611 lb.) per C.Y.
  - Maximum water/cement ratio 5.75 gal/sack (0.51 #/#)
  - 28 day compressive strength (f'c) as indicated on plans.
  - Slump 3"  $\pm$  1"
  - Entrained Air 4 to 7%
  - Coarse Aggregate AASHTO M 43, Gradation No. 67
  - Cement factors are based on 94-pound sacks
- D. The CONTRACTOR shall be responsible for producing and placing specification concrete with a cement content within a tolerance of 2%.
- E. The use of superplasticizers in the concrete mix to improve the workability of mixes with low water cement ratios will require prior written approval by the ENGINEER.
- F. The CONTRACTOR may, subject to prior approval in writing, use alternative sizes of coarse aggregate as shown in Table 1 of AASHTO M 43. If the use of an alternative size of coarse aggregate produces concrete which exceeds the permissible water-cement ratio above, thereby requiring additional cement above that specified, no compensation will be



## SECTION 03301 - STRUCTURAL CONCRETE

made to the CONTRACTOR for the additional cement.

### 2.11 SAMPLING AND TESTING

- A. Field tests of all materials will be made by the ENGINEER when deemed necessary, in accordance with the applicable Specifications. When the results of the field tests indicate the material does not conform to the requirements of the Specifications, the re-tests required by the ENGINEER shall be at the expense of the CONTRACTOR.
- B. Materials that fail to meet contract requirements, as indicated by laboratory tests, shall not be used in the WORK. The CONTRACTOR shall remove all defective materials from the site.
- C. Types and sizes of concrete specimens shall be in accordance with ASTM C 31. Additional slump tests and/or test cylinders may be required at the discretion of the ENGINEER. Should the analysis of any test cylinder not meet the preceding requirements of Article 2.10, Composition of Concrete, its representative concrete shall be removed and replaced at the CONTRACTOR's expense.
- D. Three copies of all test reports shall be furnished to the ENGINEER.

### 2.12 COLD WEATHER CONCRETE

- A. Concrete shall not be placed when the descending air temperature in the shade, away from artificial heat, falls below 40° F nor resumed before the ascending air temperature reaches 35°F, without specific written authorization. When the air temperature falls below 40° F, or is, in the opinion of the ENGINEER, likely to do so within a 24 hour period after placing concrete, the CONTRACTOR shall have ready on the job materials and equipment required to heat mixing water and aggregate and to protect freshly placed concrete from freezing.
- B. Concrete placed at air temperatures below 40°F shall have a temperature not less than 50°F nor greater than 70°F when placed in the forms. These temperatures shall be obtained by heating the mixing water and/or aggregate. Mixing water shall not be heated to more than 160°F.
- C. Binned aggregates containing ice or in a frozen condition will not be permitted nor will aggregates which have been heated directly by gas or oil flame or heated on sheet metal over an open fire. When aggregates are heated in bins, only steam-coil or water-coil heating will be permitted, except that other methods, when approved, may be used. If live steam is used to thaw frozen aggregate piles, drainage times comparable to those applicable for washed aggregates shall apply.
- D. When the temperature of either the water or aggregate exceeds 100° F, they shall be mixed together so that the temperature of the mix does not exceed 80° F at the time the cement is added.
- E. Any additives must have prior approval of the ENGINEER before being used.

## SECTION 03301 - STRUCTURAL CONCRETE

- F. The use of calcium chloride is prohibited.
- G. When placing concrete in cold weather, the following precautions shall be taken in addition to the above requirements:
  - 1. Heat shall be applied to forms and reinforcing steel before placing concrete as required to remove all frost, ice, and snow from all surfaces which will be in contact with fresh concrete.
  - 2. When fresh concrete is to be placed in contact with hardened concrete, the surface of the previous pour shall be warmed to at least 35°F, thoroughly wet, and free water removed before fresh concrete is placed.
  - 3. Freshly placed concrete shall be maintained at a temperature of not less than 70°F for 3 days or not less than 50°F for 5 days, when Type I or II cement is used, and not less than 70°F for 2 days or not less than 50°F for 3 days, when Type III cement is used. The above requirements are not intended to apply during the normal summer construction season when air temperatures of 40°F or higher can reasonably be anticipated during the two-week period immediately following concrete placement, or until the concrete is no longer in danger from freezing.
- H. When temperatures below 20°F are not expected during the curing period and, in the opinion of the ENGINEER, no other adverse conditions, such as high winds, are expected, concrete temperatures may be maintained in thick concrete sections by retention of heat of hydration by means of adequately insulated forms.
- I. When, in the opinion of the ENGINEER, greater protection is required to maintain the specified temperature, the fresh concrete shall be completely enclosed and an adequate heat source provided. Such enclosure and heat source shall be so designed that evaporation of moisture from the concrete during curing is prevented. Precautions shall be taken to protect the structure from overheating and fire.
- J. At the end of the required curing period protection may be removed, but in such a manner that the drop in temperature of any portion of the concrete will be gradual and not exceed 30°F in the first 24 hours.
- K. For concrete placed within cofferdams and cured by flooding with water, the above conditions may be waived provided that the water in contact with the concrete is not permitted to freeze. Dewatering shall not be carried out until the ENGINEER determines that the concrete has cured sufficiently to withstand freezing temperatures and hydrostatic pressure.
- L. The CONTRACTOR shall be wholly responsible for the protection of the concrete during cold weather operations. Any concrete injured by frost action or overheating shall be removed and replaced at the CONTRACTOR's expense.

### 2.13 FORMS

- A. Forms shall be so designed and constructed that they may be removed without injuring the concrete.

## SECTION 03301 - STRUCTURAL CONCRETE

- B. Unless otherwise specified, forms for exposed surfaces shall be made of plywood, hard-pressed fiberboard, sized and dressed tongue-and-groove lumber, or metal in which all bolt and rivet holes are countersunk, so that a plane, smooth surface of the desired contour is obtained. Rough lumber may be used for surfaces that will not be exposed in the finished structure. All lumber shall be free from knotholes, loose knots, cracks, splits, warps, or other defects affecting the strength or appearance of the finished structure. All forms shall be mortar tight, free of bulge and warp, and shall be cleaned thoroughly before reuse.
- C. In designing forms and falsework, concrete shall be regarded as a liquid. In computing vertical loads a weight of 150 pounds per cubic foot shall be assumed. The lateral pressure for design of wall forms shall not be less than that given by the following formulas:

For walls with R not exceeding 7 feet per hour:

$$P = 150 + \frac{9000R}{T}, \text{ but not more than}$$

2000 p.s.f. or 150 h, whichever is less.

For walls with R greater than 7 feet per hour:

$$P = 150 + \frac{43,400}{T} + \frac{2800R}{T}, \text{ but not more}$$

than 2000 p.s.f. or 150 h, whichever is less.

Where:

P = lateral pressure for design of wall forms, p.s.f.

R = rate of placement, feet per hour

T = temperature of concrete in forms, °F

h = maximum height of fresh concrete in form, feet

- D. The above formulas apply to internally vibrated concrete placed at 10 feet per hour or less, without the use of retarding agents, and where depth of vibration is limited to 4 feet below the top of the concrete surface. The CONTRACTOR shall state the placement rate and minimum concrete temperature on the working drawings for concrete form work. Deflection of plywood, studs, and walers shall not exceed 1/360 of the span between supports.
- E. Forms shall be so designed that placement and finishing of the concrete will not impose loads on the structure resulting in adverse deflections or distortions.
- F. The forms shall be so designed that portions covering concrete that is required to be finished may be removed without disturbing other portions that are to be removed later. As far as practicable, form marks shall conform to the general lines of the structure.

## SECTION 03301 - STRUCTURAL CONCRETE

- G. When possible, forms shall be daylighted at intervals not greater than 10 feet vertically, the openings being sufficient to permit free access to the forms for the purpose of inspecting, and working.
- H. Metal ties or anchorages within the forms shall be so constructed as to permit their removal to a depth of at least 1 inch from the face without injury to the concrete. All fittings for metal ties shall be of such design that, upon their removal, the cavities which are left will be of the smallest possible size.
- I. All exposed edges 90° or sharper shall be chamfered 3/4 inch unless otherwise noted. Chamfering of forms for re-entrant angles shall be required only when specifically indicated on the Plans.
- J. Forms shall be inspected immediately prior to the placing of concrete. Dimensions shall be checked carefully and any bulging or warping shall be remedied and all debris and standing water within the forms shall be removed. Special attention shall be paid to ties and bracing and where forms appear to be braced insufficiently or built unsatisfactorily, either before or during placing of the concrete, the ENGINEER shall order the WORK stopped until the defects have been corrected.
- K. Forms shall be constructed true to line and grade. Clean-out ports shall be provided at construction joints.
- L. The construction of concrete slabs with permanent steel forms shall conform to the requirements of this specification and as shown on the plans. Removable forms may be substituted for permanent metal forms with no adjustment in prices.
- M. All forms shall be installed in accordance with approved fabrication and erection plans.
- N. Form sheets shall not be permitted to rest directly on the top of the stringer or floor beam flanges. Sheets shall be securely fastened to form supports and shall have a minimum bearing one inch in length at each end. Form supports shall be placed in direct contact with the flange or stringer or floor beam. All attachments shall be made by permissible welds, bolts, clips or other approved means.
- O. All porous forms shall be treated with non-staining form oil or saturated with water immediately before placing concrete.
- P. Falsework shall be built to carry the loads without appreciable settlement. Falsework that cannot be founded on solid footings must be supported by ample falsework piling. Falsework shall be designed to sustain all imposed loads.
- Q. Detail drawings of the falsework shall be submitted for review, but such review shall not relieve the CONTRACTOR of any responsibility under the contract for the successful completion of the structure.
- R. Forms and falsework shall not be removed without the consent of the ENGINEER. The ENGINEER's consent shall not relieve the CONTRACTOR of responsibility for the safety of the WORK. Blocks and bracing shall be removed at the time the forms are removed and in no case shall any portion of the wood forms be left in the concrete.

## SECTION 03301 - STRUCTURAL CONCRETE

- S. To facilitate finishing, forms used on ornamental work, railings, parapets, and exposed vertical surfaces shall be removed in not less than 12 nor more than 48 hours, depending upon weather conditions. The side forms for arch rings, columns, and piers shall be removed before the members of the structure which they support are placed, so that the quality of the concrete may be inspected. All such side forms shall be removed before the removal of shoring from beneath beams and girders.
- T. In warm weather, falsework and forms shall remain in place under slabs, beams, girders and arches for 14 days after the day of last pour when Type I or Type II cement is used, or for 7 days when Type III cement is used. Forms for slabs having clear spans or cantilever spans of less than 10 feet may be removed after 7 days when Type I or Type II cement is used, or after 4 days when Type III cement is used. In cold weather, the length of time that forms and falsework are to remain in place shall be as approved.
- U. Falsework supporting the deck of rigid frame structures shall not be removed until fills have been placed behind the vertical legs.
- V. No superstructure load shall be placed upon finished concrete until the ENGINEER so directs, but the minimum time allowed for the curing of structural concrete in the substructure before any load of the superstructure is placed thereon shall be 7 days when Type I or Type II cement is used and 2 days when Type III cement is used.

### PART 3 - EXECUTION

#### 3.1 GENERAL

- A. All concrete shall be placed before it has taken its initial set and, in any case, within 30 minutes after mixing. Concrete shall be placed in such manner as to avoid segregation of coarse or fine portions of the mixture, and shall be spread in horizontal layers when practicable. Special care shall be exercised in the bottom of slabs and girders to assure the working of the concrete around nests of reinforcing steel, so as to eliminate rock pockets or air bubbles. Enough rods, spades, tampers and vibrators shall be provided to compact each batch before the succeeding one is dumped and to prevent the formation of joints between batches.  
  
Extra vibrating shall be done along all faces to obtain smooth surfaces. Care shall be taken to prevent mortar from splattering on forms and reinforcing steel and from drying ahead of the final covering with concrete.
- B. Concrete shall not be placed in slabs or other sections requiring finishing on the top surface when precipitation is occurring or when in the opinion of the ENGINEER precipitation is likely before completion of the finishing, unless the CONTRACTOR shall have ready on the job all materials and equipment necessary to protect the concrete and allow finishing operations to be completed.
- C. Troughs, pipes, or short chutes used as aids in placing concrete shall be arranged and used in such a manner that the ingredients of the concrete do not become separated. Where steep slopes are required, troughs and chutes shall be equipped with baffle boards or shall be in short lengths that reverse the direction of movement. All chutes, troughs, and pipe shall be kept clean and free of hardened concrete by flushing thoroughly with

## SECTION 03301 - STRUCTURAL CONCRETE

water after each run. Water used for flushing shall be discharged clear of the concrete in place. Troughs and chutes shall be of steel or plastic or shall be lined with steel or plastic and shall extend as nearly as possible to the point of deposit. The use of aluminum for pipes, chutes or tremies is prohibited. When discharge must be intermittent, a hopper or other device for regulating the discharge shall be provided.

- D. Dropping the concrete a distance of more than 5-feet or depositing a large quantity at any point and running or working it along the forms will not be permitted. The placing of concrete shall be so regulated that the pressures caused by wet concrete shall not exceed those used in the design of the forms.
- E. High frequency internal vibrators of either the pneumatic, electrical, or hydraulic type shall be used for compacting concrete in all structures. The number of vibrators used shall be ample to consolidate the fresh concrete within 15 minutes of placing in the forms. In all cases, the CONTRACTOR shall provide at least two concrete vibrators for each individual placement operation (one may be a standby), which shall conform to the requirements of these specifications. Prior to the placement of any concrete, the CONTRACTOR shall demonstrate that the 2 vibrators are in good working order and repair and ready for use.
- F. The vibrators shall be an approved type, with a minimum frequency of 5,000 cycles per minute and shall be capable of visibly affecting a properly designed mixture with a 1-inch slump for a distance of at least 18-inches from the vibrator.
- G. Vibrators shall not be held against forms or reinforcing steel nor shall they be used for flowing the concrete or spreading it into place. Vibrators shall be so manipulated as to produce concrete that is free of voids, is of proper texture on exposed faces, and of maximum consolidation. Vibrators shall not be held so long in one place as to result in segregation of concrete or formation of laitance on the surface.
- H. Concrete shall be placed continuously throughout each section of the structure or between indicated joints. If, in an emergency, it is necessary to stop placing concrete before a section is completed, bulkheads shall be placed as the ENGINEER may direct and the resulting joint shall be treated as a construction joint.
- I. The presence of areas of excessive honeycomb may be considered sufficient cause for rejection of a structure. Upon written notice that a given structure has been rejected, the rejected WORK shall be removed and rebuilt, in part or wholly as specified, at the CONTRACTOR's expense.

### 3.2 PUMPING CONCRETE

- A. Concrete may be placed by pumping if the CONTRACTOR demonstrates that the pumping equipment to be used will effectively handle the particular class of concrete with the slump and air content specified and that it is so arranged that no vibrations result that might damage freshly placed concrete. The operation of the pump shall be such that a continuous stream of concrete without air pockets is produced.
- B. When pumping is completed, the concrete remaining in the pipeline, if it is to be used, shall be ejected in such a manner that there will be no contamination of the concrete or

## SECTION 03301 - STRUCTURAL CONCRETE

separation of the ingredients. After this operation, the entire equipment shall be thoroughly cleaned. Slump tests shall be taken at the discharge end of the pipe.

3.3 COLUMNS. Concrete in columns shall be placed in one continuous operation unless otherwise permitted. The concrete shall be allowed to set a least 12 hours before caps are placed.

### 3.4 SLAB AND GIRDER SPANS

- A. Slabs and girders having spans of 30 feet or less shall be cast in one continuous operation.
- B. Girders spanning more than 30 feet may be cast in 2 operations, the first operation being the casting of the girder stems to the bottom of the slab haunches. Shear keys shall be provided for by inserting oiled timber blocks to a depth of at least 1-1/2 inches in the fresh concrete at the top of each girder stem. A sufficient number of blocks shall be used to cover uniformly about 1/2 the top surface of the girder stem and the blocks shall be removed as soon as the concrete has set sufficiently to retain their shape. The period between the first or girder casting and the second or slab casting shall be at least 24 hours. Immediately before the second casting, the CONTRACTOR shall check all falsework for shrinkage and settlement and shall tighten all wedges to insure minimum deflection of the stems due to the added weight of the slab.

### 3.5 SLABS ON STEEL BEAMS

- A. A concrete slab on simple steel girder spans may be placed in not more than three sections with the first section centered on the span.
- B. On truss spans or continuous girders, the concrete slab shall be placed as shown on the Plans or as directed by the ENGINEER.

### 3.6 CONCRETE DEPOSITED UNDER WATER

- A. If conditions render it impossible or inadvisable in the opinion of the ENGINEER to dewater excavations before placing concrete, the CONTRACTOR shall deposit under water, by means of a tremie or pump, a seal course of concrete of sufficient thickness to thoroughly seal the cofferdam. The concrete shall be carefully placed in a compact mass and shall not be disturbed after being deposited. Still water shall be maintained at the point of deposit.
- B. A tremie shall consist of a watertight tube having a diameter of not less than 10-inches with a hopper at the top. When a batch is dumped into the hopper, the flow of concrete shall be induced by slightly raising the discharge end, always keeping it in the deposited concrete.
- C. Tremie tubes or pump discharge tubes used to deposit concrete under water shall be equipped with a device that will prevent water from entering the tube while charging the tube with concrete. Such tubes shall be supported so as to permit free movements of the discharge end over the entire top surface of the work and to permit rapid lowering, when necessary to retard or stop the flow of concrete. The tubes shall be filled by a method that will prevent washing of the concrete. The discharge end shall be completely

## SECTION 03301 - STRUCTURAL CONCRETE

submerged in concrete at all times and the tube shall contain sufficient concrete to prevent any water entry. The flow shall be continuous until the WORK is completed and the resulting concrete seal shall be monolithic and homogeneous.

- D. The exact thickness of the seal will depend upon the hydrostatic head, bond and spacing of piles, size of cofferdam, and other related factors, but in no case shall the seal be less than 2 feet in thickness, unless otherwise shown on the plans. Before dewatering, the concrete in the seal shall be allowed to cure for not less than five days after placing, or until the seal concrete has achieved a minimum compressive strength of 2,500 p.s.i. based on test cylinders cured under the same conditions as the in situ concrete, whichever occurs first.
- E. If a seal which is to withstand hydrostatic pressure is placed in water having a temperature below 45°F, the curing time before dewatering shall be increased as directed.
- F. Periods of time during which the temperature of the water has been continuously below 38°F shall not be considered as curing time.
- G. After sufficient time has elapsed to insure adequate strength in the concrete seal, the cofferdam shall be dewatered and the top of the concrete cleaned of all scum, laitance and sediment. Before fresh concrete is deposited, local high spots shall be removed as necessary to provide proper clearance for reinforcing steel.

### 3.7 CONSTRUCTION JOINTS

- A. Construction joints shall be located where shown on the plans or as permitted by the ENGINEER. Construction joints shall be perpendicular to the principal lines of stress and in general shall be located at points of minimum shear.
- B. At horizontal construction joints, gage strips 1-1/2 inches thick shall be placed inside the forms along all exposed faces to give the joints straight lines. Before placing fresh concrete, the surfaces of construction joints shall be washed and scrubbed with a wire broom, drenched with water until saturated, and kept saturated until the new concrete is placed.
- C. Immediately prior to placing new concrete the forms shall be drawn tight against the concrete already in place. Concrete in substructures shall be placed in such manner that all horizontal construction joints will be truly horizontal and, if possible, in locations such that they will not be exposed to view in the finished structure. Where vertical construction joints are necessary, reinforcing bars shall extend across the joint in such a manner as to make the structure monolithic. Special care shall be taken to avoid construction joints through large surfaces which are to be treated architecturally.
- D. All construction joints shall be provided with concrete shear keys at least 1-1/2 inches deep and 1/3 of the concrete thickness in width, unless otherwise shown on the Plans.



## SECTION 03301 - STRUCTURAL CONCRETE

### 3.8 EXPANSION JOINTS

- A. Expansion joints shall be located and formed as required on the plans.
- B. Open Joints. Open joints shall be placed in the location shown on the plans and shall be formed. The form shall be removed without chipping or breaking the corners of the concrete. Reinforcement shall not extend across an open joint, unless so specified on the plans.
- C. Filled Joints. Unless otherwise shown on the plans, expansion joints shall be constructed with pre-molded expansion joint filler with a thickness equal to the width of the joint.
- D. The joint filler shall be cut to the same shape and size as the adjoining surfaces. It shall be fixed firmly against the surface of the concrete already in place in such manner that it will not be displaced when concrete is deposited against it.
- E. Immediately after the forms are removed, the expansion joints shall be inspected carefully. Any concrete or mortar that has sealed across the joint shall be removed.
- F. Joint sealer for use in deck joints shall be of the type shown on the plans conforming to the requirements of Article 2.4 – Joint Fillers, of this Section. The faces of all joints to be sealed shall be free of foreign matter, paint, curing compound, oils, greases, dirt, free water, and laitance.
- G. Elastomeric Compression Seals. The joint seal shall be shaped as shown on the plans. It shall be installed by suitable hand or machine tools and thoroughly secured in place with a lubricant-adhesive recommended by the seal manufacturer. The lubricant-adhesive shall cover both sides of the seal over the full area in contact with the sides of the joint.
- H. The seal shall be in one piece for the full width of the joint. Any joints at curbs shall be sealed adequately with additional adhesive.
- I. The seal may be installed immediately after the curing period of the concrete. Temperature limitations of the lubricant-adhesive as guaranteed by the manufacturer shall be observed.
- J. Strip Seals. Expansion joint strip seals shall be as shown on the plans, and composed of a steel extrusion and an extruded strip seal. The steel shall conform to ASTM A242 or A588. The seal shall be manufactured of material conforming to the requirements of PART 2 of this Section. Strip seals shall be one-piece for the length of the joint.
- K. Installation of the expansion joints shall be in accordance with the manufacturer's recommendations, except that the joint opening shall be adjusted for the dimensions indicated on the Plans.
- L. Steel Joints. The plates, angles, or other structural shapes shall be accurately shaped at the shop to conform to the section of the concrete slab. The fabrication and painting shall conform to the requirements of the specifications covering those items. Care shall be taken to insure that the surface in the finished plane is true and free of warping. Positive methods shall be employed in placing the joints to keep them in correct position during

## SECTION 03301 - STRUCTURAL CONCRETE

the placing of the concrete. The opening at expansion joints shall be that designated on the plans at normal temperature.

### 3.9 ANCHOR BOLTS

- A. Anchor bolt assemblies conforming to the details shown shall be accurately secured in the forms in the positions shown on the plans, before any concrete is placed in the forms. The positions shall be checked and any adjustments made as soon as the concrete has been placed.
- B. When pipe sleeves or pre-cast holes are provided, no water shall be allowed to freeze in the cavity. If frost causes cracks in the concrete, the entire placement shall be removed and replaced at the CONTRACTOR's expense. When anchor bolts are installed in pipe sleeves or pre-cast holes, the cavity shall be completely filled with grout at the time the grout pads are constructed or at the time the bearing assemblies or masonry plates are placed.

### 3.10 DRAINAGE AND WEEP HOLES

- A. Drainage holes and weep holes shall be constructed as indicated on the plans or as required.
- B. Weep holes through concrete shall be formed. If wooden forms are used, they shall be removed after the concrete is cured. If subsurface drainage is not shown on the plans, weep holes shall be provided in retaining walls and abutment walls where the height of the wall is over 5-feet measured from the top of the footing. Weep holes shall be 4 inches in diameter and shall be spaced not more than 15-feet apart. The outlet end of weep holes shall be placed just above the finish ground line at the face of wall, or as directed.

3.11 PIPES, CONDUITS, AND DUCTS. Pipes, conduits, and ducts that are to be encased in concrete shall be installed in the forms by the CONTRACTOR before the concrete is placed. Unless otherwise indicated, they shall be standard, lightweight cast-iron water pipe or wrought iron. They shall be held rigidly so they will not be displaced during concrete placement.

3.12 FINISHING CONCRETE SURFACES. All concrete surfaces exposed in the completed WORK shall receive an Ordinary Finish, as described below, unless otherwise noted on the Plans or in other Specification sections.

### 3.13 ORDINARY FINISH

- A. An Ordinary Finish is defined as the finish left on a surface after the removal of the forms, the filling of all holes left by form ties, and the repairing of all defects. The surface shall be true and even, free from stone pockets and depressions or projections. All surfaces that cannot be satisfactorily repaired shall be given a Rubbed Finish.
- B. The concrete in caps and tops of walls shall be struck off with a straightedge and floated to true grade. The use of mortar topping for concrete surfaces shall in no case be permitted.

## SECTION 03301 - STRUCTURAL CONCRETE

- C. As soon as the forms are removed, metal devices that have been used for holding the forms in place, and which pass through the body of the concrete, shall be removed or cut back at least 1 inch beneath the surface of the concrete. Fins of mortar and all irregularities caused by form joints shall be removed.
- D. All small holes, depressions, and voids, that show upon the removal of forms, shall be filled with cement mortar mixed in the same proportions as that used in the body of the WORK. In patching larger holes and honeycombs, all coarse or broken material shall be chipped away until a dense uniform surface of concrete exposing solid coarse aggregate is obtained. Feathered edges shall be cut away to form faces perpendicular to the surface. All surfaces of the cavity shall be saturated thoroughly with water, after which a thin layer of neat cement mortar shall be applied. The cavity shall then be filled with stiff mortar composed of 1 part of Portland cement to two parts of sand, which shall be thoroughly tamped into place. The mortar shall be pre-shrunk by mixing it approximately 20 minutes before using. The length of time may be varied in accordance with brand of cement used, temperature, humidity, and other local conditions. The surface of this mortar shall be floated with a wooden float before initial set takes place and shall be neat in appearance. The patch shall be kept wet for a period of five days.
- E. For patching large or deep areas, coarse aggregate shall be added to the patching material. All mortar for patching on surfaces which will be exposed to view in the completed structure shall be color matched to the concrete. Test patches for color matching shall be conducted on concrete that will be hidden from view in the completed WORK and shall be subject to approval.

### 3.14 RUBBED FINISH

- A. When forms can be removed while the concrete is still green, the surface shall be pointed and wetted and then rubbed with a wooden float until all irregularities and form marks are removed and the surface is covered with a lather composed of cement and water. If permitted, a thin grout composed of one part cement and one part fine sand may be used in the rubbing. This lather shall be allowed to set for at least five days. The surface shall then be smoothed by being rubbed lightly with a fine Carborundum stone.
- B. If the concrete has hardened before being rubbed, a medium coarse Carborundum stone shall be used to finish the surface. Such WORK shall not be done until at least 4 days after placing and it shall be done in the following manner. A thin grout composed of 1 part cement and 1 part fine sand shall be spread over a small area of the surface and rubbed immediately with the stone until all form marks and irregularities are removed and the surface is covered with a lather, after which the surface shall be finished as described above for green concrete.
- C. The surface shall be smooth in texture and uniform in appearance. The building up of depressions will not be permitted.
- D. If, through the use of first-class form materials and the exercise of special care, concrete surfaces are obtained that are satisfactory, the CONTRACTOR may be relieved entirely or in part from the requirement for rubbing.

## SECTION 03301 - STRUCTURAL CONCRETE

### 3.15 CONCRETE DECKS

- A. A smooth riding surface of uniform texture, true to the required grade and cross section, shall be obtained on all bridge roadway decks. The CONTRACTOR may use hand tools or finishing machines, or a combination of both, conforming to the requirements specified herein for finishing bridge roadway deck concrete.
- B. Finishing of concrete placed in bridge decks shall consist essentially of striking off the surface of the concrete as placed and floating with longitudinal floats the surface so struck off.
- C. The placing of concrete in bridge roadway decks will not be permitted until the ENGINEER is satisfied that the rate of producing and placing concrete will be sufficient to complete the proposed placing and finishing operations within the scheduled time, that experienced finishing machine operators and concrete finishers are employed to finish the deck, and all necessary finishing tools and equipment are on hand at the site of the WORK and in satisfactory condition for use.
- D. Finishing machines shall be set up sufficiently in advance of use to permit inspection during the daylight hours before each placement. Before any fresh concrete is deposited on the deck, the finishing machine shall be moved on its rails across the length of the scheduled placement and the clearance between the strike off and deck reinforcing steel shall be checked to ensure that the required minimum concrete cover will be maintained with due consideration for deflections.
- E. Unless adequate lighting facilities are provided by the CONTRACTOR, the placing of concrete in bridge decks shall cease at such time that finishing operations can be completed during daylight hours.
- F. Rails for support and operation of finishing machines and headers for hand-operated strike off devices shall be completely in place and firmly secured for the scheduled length of concrete placement before placing of concrete will be permitted. Rails for finishing machines shall extend beyond both ends of the scheduled length of concrete placement a sufficient distance that will permit the float of the finishing machine to fully clear the concrete to be placed. Rails or headers shall be adjustable for elevation and shall be set to elevations with allowance for anticipated settlement, camber, and deflection of falsework, as required to obtain a bridge roadway deck true to the required grade and cross section.
- G. Rails or headers shall be of a type and shall be so installed that no springing or deflection will occur under the weight of the finishing equipment, and shall be so located that finishing equipment may operate without interruption over the entire bridge roadway deck being finished.
- H. Details for supporting finishing machine rails shall be submitted and must be approved before any deck slab concrete is placed.
- I. The rate of placing concrete shall be limited to that which can be finished before the beginning of initial set, except that concrete for the deck surface shall not be placed more than 10 feet ahead of strike off.

## SECTION 03301 - STRUCTURAL CONCRETE

- J. After the concrete has been placed and consolidated, the surface of the concrete shall be carefully struck off by means of a hand-operated strike board, operating on headers, or by a finishing machine operating on rails. A uniform deck surface true to the required grade and cross section shall be obtained.
- K. Following strike off, the surface of the concrete shall be floated longitudinally. In the event strike off is performed by means of a hand-operated strike board, two separate hand-operated float boards for longitudinal floating shall be provided. The first float shall be placed in operation as soon as the condition of the concrete will permit and the second float shall be operated as far back of the first float as the workability of the concrete will permit.
- L. In the event the strike off is performed with a finishing machine, longitudinal floating of the concrete shall be performed by means of a hand-operated float board or a finishing machine equipped with a longitudinal float. The longitudinal float on the finishing machine shall have a length of not less than 8 feet nor more than 12 feet.
- M. Any finishing machine having a wheel base six feet or less used for strike off shall be followed by two separate hand-operated float boards for longitudinal floating. All the provisions in this section pertaining to hand-operated float boards shall apply to the two separate float boards for longitudinal floating.
- N. Longitudinal floats, either hand-operated or machine-operated, shall be used with the long axis of the float parallel to the centerline of the bridge roadway. The float shall be operated with a combined longitudinal and transverse motion planing off the high areas and floating the material removed into the low areas. Each pass of the float shall lap the previous pass by 1/2 the length of the float. Floating shall be continued until a smooth riding surface is obtained. The driving surface of the concrete shall have a heavy broom finish. Decks to receive waterproof membranes shall be float finished.
- O. Hand-operated float boards shall be from 12 feet to 16 feet long, ribbed and trussed as necessary to provide a rigid float, and shall be equipped with adjustable handles at each end. The float shall be wood, not less than 1 inch thick and from 4-inches to 8-inches wide. Adjusting screws spaced at not to exceed 24-inches on centers shall be provided between the float and the rib. The float board shall be true and free of twist.
- P. Hand-operated float boards shall be operated from transverse finishing bridges. The finishing bridges shall span completely the roadway area being floated and a sufficient number of finishing bridges shall be provided to permit operation of the floats without undue delay. Not less than two transverse finishing bridges shall be provided when hand-operated float boards are used. When a finishing machine is used for longitudinal floating one finishing bridge equivalent to the transverse finishing bridge specified herein shall be furnished for use by the ENGINEER.
- Q. All finishing bridges shall be of rigid construction.
- R. Immediately following completion of the deck finishing operations, the concrete in the deck shall be cured as specified in Article 3.17, Curing Concrete, of this Section.

## SECTION 03301 - STRUCTURAL CONCRETE

- S. The finished surface of the concrete shall be tested by means of a straightedge 10 feet long. The surface shall not vary more than 0.01 foot from the lower edge of the straightedge, except bridge decks receiving asphalt wearing courses shall not vary more than 0.02 foot from the lower edge of the straightedge. All high areas in the hardened surface in excess of 0.01 foot as indicated by testing shall be removed by abrasive means. After grinding by abrasive means has been performed, the surface of the concrete shall not be smooth or polished. Ground areas shall be of uniform texture and shall present neat and approximately rectangular patterns.
- T. Devices for supporting finishing machine rails shall be of such design that those portions which are to remain embedded in the concrete deck will be covered by a minimum of two inches of concrete when finishing is completed.

### 3.16 CURB AND SIDEWALK SURFACES.

- A. Exposed faces of curbs and sidewalks shall be finished to true surfaces and conform to Section 3303 – Sidewalk, Curb and Gutter. Concrete shall be worked until coarse aggregate is forced down into the body of the concrete and a layer of mortar approximately 1/4 inch thick is flushed on the top. The surface shall then be floated to a smooth but not slippery finish.

### 3.17 CURING CONCRETE

#### A. Water Curing

1. All concrete surfaces shall be kept wet for at least seven days after placing if Type I or II cement has been used or for three days if Type III cement has been used. Concrete shall be covered with wet burlap, cotton mats, or other materials meeting the requirements of AASHTO M 171 immediately after final finishing of the surface. These materials shall remain in place for the full curing period or they may be removed when the concrete has hardened sufficiently to prevent marring and the surface immediately covered with sand, earth, straw, or similar materials.
2. In either case the materials shall be kept thoroughly wet for the entire curing period. All other surfaces, if not protected by forms, shall be kept thoroughly wet, either by sprinkling or by the use of wet burlap, cotton mats, or other suitable fabric, until the end of the curing period. If wood forms are allowed to remain in place during the curing period, they shall be kept moist at all times to prevent opening at joints.

- B. Membrane Curing. Liquid membrane curing compound meeting the requirements of AASHTO M 148, Type I, may be permitted, subject to approval by the ENGINEER, except compounds utilizing linseed oil shall not be used. All finishing of concrete surfaces shall be performed to the satisfaction of the ENGINEER prior to applying the impervious membrane curing compound. The concrete surfaces must be kept wet with water continuously until the membrane has been applied. The manufacturer's instructions shall be carefully followed in applying the membrane, and in all cases the membrane curing compound must always be thoroughly mixed immediately before application. In case the membrane becomes marred, worn, or in any way damaged, it must immediately

## **SECTION 03301 - STRUCTURAL CONCRETE**

be repaired by wetting the damaged area thoroughly and applying a new coat of the impervious membrane curing compound. Membrane curing will not be permitted for concrete slabs that are to be covered with waterproof membranes, polymer modified concrete or at construction joints.

### **3.18 BACKFILLING AND OPENING TO TRAFFIC**

- A. Unbalanced backfilling against concrete structures will not be permitted until the concrete has attained a compressive strength of not less than 80% of the ultimate strength (f 'c) shown on the Plans.
- B. Concrete culverts and bridges with concrete decks shall remain closed to traffic until permission to open them is granted. No vehicle will be allowed on any span until the concrete in the span has attained a compressive strength of not less than 80% of the ultimate strength (f 'c) shown on the plans, and loads of any character having a total weight in excess of 4,000 pounds will not be permitted on any span until the concrete in the span has attained a compressive strength of not less than the ultimate strength (f 'c) shown on the Plans.
- C. The compressive strength shall be determined from informational test cylinders cured on the site under similar conditions of temperature and moisture as the concrete in the structure.

### **3.19 CLEANING UP**

- A. Upon completion of the structure and before final acceptance, the CONTRACTOR shall remove all falsework. Falsework piling shall be removed or cut off at least 2 feet below the finished ground line.

**END OF SECTION**

## SECTION 03305 – CONCRETE PAVING

### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. The WORK under this Section shall include all labor, materials, tools and equipment necessary for construction of the cast-in-place concrete paving and all other hardware and related Work, in accordance with the requirements of the Contract Documents and as shown on the Plans.

#### 1.2 REFERENCES

- A. ASTM (American Society of Testing Materials) Specifications
- B. ACI (American Concrete Institute) Code
- C. AWS (American Welding Society) D1.4 – Reinforcing Steel
- D. ASTM A615 – Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
- E. ASTM A706 - Low Alloy Steel Deformed Bars for Concrete Reinforcement
- F. ASTM C150 – Portland Cement
- G. ASTM C33 – Concrete Aggregates
- H. ACI 301 – Structural Concrete for Buildings
- I. ACI 304 – Recommended Practice for Measuring, Mixing Transporting and Placing Concrete
- J. ACI 306R – Cold-Weather Concreting
- K. ACI 308 – Standard Practice for Curing Concrete
- L. ACI 309 – Standard Practice for Consolidation of Concrete
- M. ACI 318 – Building Code Requirements for Reinforced Concrete
- N. ACI 347 – Recommended Practice for Concrete Formwork

#### 1.3 SUBMITTALS

- A. Concrete Mix Design.
- B. Reinforcement Fabrication Drawings.
- C. Concrete Sealer
- D. Joint Sealant and Backer Rod.



## SECTION 03305 – CONCRETE PAVING

- E. Construction Joint Layout: Indicate proposed construction joints required to construct the pavement. Location of construction joints is subject to Engineer approval.

### 1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with applicable ACI requirements.
- B. Acquire cement and aggregate from the same source for all Work.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Concrete shall conform to the following requirements:

Minimum Cement Content (94 lb.sacks/cy)	7.0
Silica Fume in Lbs./cy	50
Maximum Water Content Ratio in Gal./Sack cement	5.0
Slump Range in Inches (before plasticizer)	4" max.
Entrained Air Range in Percentage	5-8 %
Coarse Aggregate (AASHTO Gradation)	No. 67
Fine Aggregate (AASHTO Gradation)	M-6
Minimum Design Strength, psi (f'c)	6,000

- B. Reinforcing steel shall be new billet stock ASTM A615, Grade 60. Bent or welded bars shall be ASTM A706, Grade 60.
- C. All other miscellaneous materials shall conform to Section 03301 – Structural Concrete.

### 2.2 CONCRETE SEALER

- A. Chem-Crete Sofix CCC100 or approved equal shall be used as a concrete curing and waterproofing sealer system. The concrete sealer shall be applied to the concrete paving prior to opening the surface to traffic.

### 2.3 CONCRETE JOINT SEAL

- A. The concrete joint seal shall be hot applied with backer rod material per the manufactures written recommendations. The joint seal shall be Crafo, Inc Roadsaver 221, or approved equal. Backer rod shall be cross-linked, closed-cell HBR XL, Construction Foam Products, or approved equal.

### 2.4 FORMWORK

- A. Forms shall be designed and constructed to be removed without injuring the concrete. They shall be free of bulge and warp, and constructed so the finished concrete will be of the form and dimensions shown on the Plans, and true to line and grade. Forms for concrete containing a retarding admixture shall be designed for a lateral pressure equal to that exerted by a fluid weighing 150 pounds per cubic foot.

## SECTION 03305 – CONCRETE PAVING

### 2.5 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.
- B. Weathermate Sill Seal by the Dow Chemical Company or approved equal shall be used as a filler strip for expansion joints at slab penetrations of less than 24 inch diameter.

### 2.6 CONCRETE CRACK REPAIR

- A. Euco Qwikstich Fast Setting Urethane Crack and Spall Repair by The Euclid Chemical Company or approved equal.

## PART 3 – EXECUTION

### 3.1 INSTALLATION

- A. Mixing: Mix in accordance with proportions specified in the Concrete Mix Design submitted by the CONTRACTOR, and approved by the ENGINEER. Concrete shall be mixed in a batch mixer of acceptable size and type which will ensure a uniform distribution of materials throughout the mix so as to produce a homogeneous mix, uniform in color. All concrete shall be placed within (1) hour after water is first added to the batch. The mixer shall be cleaned at frequent intervals while in use.
- B. Placing Concrete:
  - 1. Notify ENGINEER a minimum of 24 hours prior to commencement of operations.
  - 2. Place concrete in accordance with ACI 304 and as herein specified. Place concrete continuously or in layers of such thickness that no concrete has hardened or set sufficiently to cause the formation of cold joints, seams or planes of weakness.
  - 3. Remove water and debris from concrete form work prior to placing concrete.
  - 4. Place concrete as nearly as practicable to its final position so as to avoid segregation due to excessive drop and rehandling.
  - 5. Do not use concrete which becomes nonplastic and unworkable and does not meet the required quality control limits, or has been contaminated by foreign materials.
  - 6. Remove rejected concrete from the site.
- C. Consolidation:
  - 1. Consolidate concrete in accordance with ACI 309 and as herein specified.
  - 2. Consolidate the full depth of concrete slab and thickened slab edge. Consolidate slabs per section 03301-Structural Concrete immediately after placing concrete. Use a high frequency mechanical concrete vibrator to consolidate concrete, supplemented by hand-spreading, rodding or tamping.

## SECTION 03305 – CONCRETE PAVING

3. Do not use vibrators to transport concrete inside the forms.
- D. Equipment:
1. Provide adequate number of mechanically maintained equipment, including spare units, to ensure completion of concrete placement, as required, without delay or stopping.
- E. Finishing:
1. All finished or formed surfaces shall accurately conform to the shape, alignment, grades and sections as shown of the Plans.
  2. Provide heavy broom finish, transverse to primary traffic, on all horizontal surfaces. Provide Ordinary Finish on all vertical surfaces per Section 03301 – Structural Concrete.
- F. Curing and Protection:
1. Cure and protect concrete in accordance with ACI 308, ACI 306R and as herein specified.
  2. Immediately after placement, protect concrete from premature drying and physical damage according to section 03301-Structural Concrete. No concrete shall be placed during a rain event unless acceptable protective shelter is provided.
  3. Maintain concrete with minimal moisture loss and at relatively constant temperature for period of time necessary for sufficient hydration of cement and hardening of concrete.
  4. Concrete shall be kept continually wet while curing by applying water over the curing concrete slab a minimum of twice a day. The curing concrete slab shall be covered with burlap or other approved material for at least 7 days if Type I or Type II cement is used or for at least 3 days if Type III cement is used.
  5. Wood forms allowed to remain in place during the curing period shall be keep moist at all times.
  6. Liquid membrane curing compound may be permitted, subject to approval of manufacturer's product data. Apply in strict accordance with manufacturer's instructions. Maintain moisture cure procedures prior to application of approved curing compound. Repair marred or damaged membrane immediately.
  7. Protect all fresh concrete from vibrations due to compaction of adjacent earthwork until the fresh concrete has reached a min 80% of its compressive capacity.
  8. Protect fresh and curing concrete from ambient temperatures less than 40°F per section 03301-Structural Concrete.
- G. Defective concrete consists of concrete not conforming to mix design, required lines, grades, details, dimensions, tolerances or other specified requirements. Repair or

## SECTION 03305 – CONCRETE PAVING

replacement of defective concrete shall be determined by the ENGINEER. Defective concrete shall be repaired and/or replaced at no additional cost to the OWNER. Repair all concrete cracks greater than 0.007” wide with Euco Qwikstich crack repair product or approved equal.

- H. CONTRACTOR shall protect adjacent fill materials from erosion at all times during construction of the concrete slab. Any eroded materials shall be replaced at no additional cost to the OWNER.
- I. All other construction requirements shall conform to Section 03301 – Structural Concrete.
- J. Apply sealer coat to finished concrete surface per manufactures recommendations. Submit product information to ENGINEER for approval prior to ordering.

### 2.03 SEALANT ACCESSORIES:

- A. General: Provide joint backings, fillers, or primers as recommended by joint sealant manufacturer.
- B. Cylindrical Sealant Backings: Provide joint backings that meet ASTM C-1330, Type O (open-cell polyurethane) or Type B (non-absorbent bi-cellular backing materials with surface skin) sized 25% or greater than joint opening with proper density to control sealant depth and profile. Follow joint sealant manufacturer’s recommendations with backing selections for optimum joint sealant performance.
- C. Bond-breaker tape: Polyethylene tape or other approved plastic tape as recommended by joint sealant manufacturer to prevent 3-sided joint adhesion to rigid, in-flexible joint fillers or filet joint surfaces at back of joint where such adhesion would restrict proper sealant movement or result in sealant failure.
- D. Masking tape: Non-staining, non-absorbent and compatible with joint sealants and adjacent surfaces.
- E. Primers: Use primers only as recommended by sealant manufacturer where required for adhesion of sealant to joint substrates indicated and as determined for use from pre-construction mock-up testing.

**END OF SECTION**

## SECTION 16060 - GROUNDING AND BONDING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes grounding and bonding systems and equipment.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

#### 1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  1. Burndy; Part of Hubbell Electrical Systems.
  2. Dossert; AFL Telecommunications LLC.
  3. ERICO International Corporation.
  4. Fushi Copperweld Inc.
  5. Galvan Industries, Inc.; Electrical Products Division, LLC.
  6. Harger Lightning and Grounding.
  7. ILSCO.
  8. O-Z/Gedney; A Brand of the EGS Electrical Group.
  9. Robbins Lightning, Inc.
  10. Siemens Power Transmission & Distribution, Inc.

## SECTION 16060 - GROUNDING AND BONDING

### 2.2 SYSTEM DESCRIPTION

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

### 2.3 CONDUCTORS

- A. Insulated Conductors: Copper or tinned-copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
  - 1. Solid Conductors: ASTM B 3.
  - 2. Stranded Conductors: ASTM B 8.
  - 3. Tinned Conductors: ASTM B 33.
  - 4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch (6 mm) in diameter.
  - 5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
  - 6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
  - 7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.

### 2.4 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

### 2.5 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad; 5/8 by 96 inches (16 by 2400 mm).

## PART 3 - EXECUTION

### 3.1 APPLICATIONS

- A. Conductors: Install stranded conductors unless otherwise indicated.
- B. Conductor Terminations and Connections:

## **SECTION 16060 - GROUNDING AND BONDING**

1. Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except as otherwise indicated.

### **3.2 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS**

- A. Comply with IEEE C2 grounding requirements.
- B. Grounding Vaults: Install a driven ground rod inside vault, close to wall, and set rod depth so 4 inches (100 mm) will extend above vault base. If necessary, install ground rod before vault is placed and provide No. 1/0 AWG bare, tinned-copper conductor from ground rod into vault.
- C. Grounding Connections to Vault Components: Bond exposed-metal parts such as inserts, cable supports, and pulling irons within each vault, to ground rod or grounding conductor. Make connections with No. 4 AWG minimum, stranded, hard-drawn copper bonding conductor. Train conductors level or plumb around corners and fasten to vault walls.

### **3.3 EQUIPMENT GROUNDING**

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.

### **3.4 INSTALLATION**

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are 2 inches (50 mm) below final grade unless otherwise indicated.
  1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
- C. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
  1. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

**END OF SECTION**

## **SECTION 16073 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Hangers and supports for electrical equipment and systems.
  - 2. Construction requirements for concrete bases.

#### **1.3 DEFINITIONS**

- A. IMC: Intermediate metal conduit.
- B. RMC: Rigid metal conduit.

#### **1.4 PERFORMANCE REQUIREMENTS**

- A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

#### **1.5 ACTION SUBMITTALS**

- A. Product Data: For the following:
  - 1. Steel slotted support systems.

#### **1.6 QUALITY ASSURANCE**

- A. Comply with NFPA 70.



## SECTION 16073 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

### 1.7 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified together with concrete Specifications.

## PART 2 - PRODUCTS

### 2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
  - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Allied Tube & Conduit.
    - b. Cooper B-Line, Inc.
    - c. ERICO International Corporation.
    - d. GS Metals Corp.
    - e. Thomas & Betts Corporation.
    - f. Unistrut; Atkore International.
    - g. Wesanco, Inc.
  - 2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
  - 3. Channel Dimensions: Selected for applicable load criteria.

### 2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in Section 05500 "Metal Fabrications" for steel shapes and plates.

## PART 3 - EXECUTION

### 3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for IMC and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.

## **SECTION 16073 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS**

### **3.2 SUPPORT INSTALLATION**

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, IMC and RMC may be supported by openings through structure members, as permitted in NFPA 70.
- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).
- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
  - 1. To Wood: Fasten with lag screws or through bolts.
  - 2. To New Concrete: Bolt to concrete inserts.
  - 3. To Existing Concrete: Expansion anchor fasteners.
  - 4. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.
  - 5. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts.
  - 6. To Light Steel: Sheet metal screws.
- E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

### **3.3 INSTALLATION OF FABRICATED METAL SUPPORTS**

- A. Comply with installation requirements in Section 05500 "Metal Fabrications" for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- C. Field Welding: Comply with AWS D1.1/D1.1M.

### **3.4 CONCRETE BASES**

- A. Construct concrete bases of dimensions indicated but not less than 4 inches (100 mm) larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

## **SECTION 16073 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS**

- B. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Section 03300 "Cast-in-Place Concrete."
- C. Anchor equipment to concrete base.
  - 1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
  - 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

### **3.5 PAINTING**

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
  - 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

**END OF SECTION**

## **SECTION 16075 - ELECTRICAL IDENTIFICATION**

### **PART 1 - GENERAL**

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Identification for conductors.
  - 2. Underground-line warning tape.
  - 3. Equipment identification labels.
  - 4. Miscellaneous identification products.

#### 1.3 QUALITY ASSURANCE

- A. Comply with ANSI A13.1.
- B. Comply with NFPA 70.
- C. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

#### 1.4 COORDINATION

- A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes and standards. Use consistent designations throughout Project.
- B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

### **PART 2 - PRODUCTS**

#### 2.1 CONDUCTOR IDENTIFICATION MATERIALS

- A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils (0.08 mm) thick by 1 to 2 inches (25 to 50 mm) wide.
- B. Self-Adhesive, Self-Laminating Polyester Labels: Preprinted, 3-mil- (0.08-mm-) thick flexible label with acrylic pressure-sensitive adhesive that provides a clear, weather- and chemical-

## SECTION 16075 - ELECTRICAL IDENTIFICATION

resistant, self-laminating, protective shield over the legend. Labels sized to fit the conductor diameter such that the clear shield overlaps the entire printed legend.

- C. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.
- D. Write-On Tags: Polyester tag, 0.015 inch (0.38 mm) thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.
  - 1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.

### 2.2 UNDERGROUND-LINE WARNING TAPE

- A. Tape:
  - 1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
  - 2. Printing on tape shall be permanent and shall not be damaged by burial operations.
  - 3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.
- B. Color and Printing:
  - 1. Comply with ANSI Z535.1 through ANSI Z535.5.
  - 2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE,.
  - 3. Inscriptions for Orange-Colored Tapes: COMMUNICATIONS CABLE.

### 2.3 EQUIPMENT IDENTIFICATION LABELS

- A. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch (10 mm).

### 2.4 CABLE TIES

- A. General-Purpose Cable Ties: Fungus inert, self extinguishing, one piece, self locking, Type 6/6 nylon.
  - 1. Minimum Width: 3/16 inch (5 mm).
  - 2. Tensile Strength at 73 deg F (23 deg C), According to ASTM D 638: 12,000 psi (82.7 MPa).
  - 3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
  - 4. Color: Black except where used for color-coding.
- B. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self extinguishing, one piece, self locking, Type 6/6 nylon.
  - 1. Minimum Width: 3/16 inch (5 mm).

## SECTION 16075 - ELECTRICAL IDENTIFICATION

2. Tensile Strength at 73 deg F (23 deg C), According to ASTM D 638: 12,000 psi (82.7 MPa).
3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
4. Color: Black.

### 2.5 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Verify identity of each item before installing identification products.
- B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- C. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
- D. Cable Ties: For attaching tags. Use general-purpose type, except as listed below:
  1. Outdoors: UV-stabilized nylon.
- E. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches (150 to 200 mm) below finished grade. Use multiple tapes where width of multiple lines installed in a common trench exceeds 16 inches (400 mm) overall.

### 3.2 IDENTIFICATION SCHEDULE

- A. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, and handholes, use color-coding conductor tape to identify the phase.
  1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded feeder and branch-circuit conductors.
    - a. Color shall be factory applied **or** field applied for sizes larger than No. 8 AWG.
    - b. Colors for 208/120-V Circuits:
      - 1) Phase A: Black.
      - 2) Phase B: Red.
      - 3) Phase C: Blue.
    - c. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches (150 mm) from terminal points and in boxes where

## **SECTION 16075 - ELECTRICAL IDENTIFICATION**

splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

- B. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, and communication.
- C. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment. Systems include power and lighting, systems unless equipment is provided with its own identification.
  - 1. Labeling Instructions:
    - a. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
    - b. Fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.
  - 2. Equipment to Be Labeled:
    - a. Enclosures and electrical cabinets.
    - b. Switchboard Feeders.

**END OF SECTION**

## SECTION 16120 - CONDUCTORS AND CABLES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Building wires and cables rated 600 V and less.
  - 2. Connectors, splices, and terminations rated 600 V and less.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

### PART 2 - PRODUCTS

#### 2.1 CONDUCTORS AND CABLES

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Alcan Products Corporation; Alcan Cable Division.
  - 2. Alpha Wire.
  - 3. Belden Inc.
  - 4. Encore Wire Corporation.
  - 5. General Cable Technologies Corporation.
  - 6. Southwire Incorporated.
- B. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.
- C. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type XHHW-2 or Type USE.



## SECTION 16120 - CONDUCTORS AND CABLES

### 2.2 CONNECTORS AND SPLICES

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. AFC Cable Systems, Inc.
  2. Gardner Bender.
  3. Hubbell Power Systems, Inc.
  4. Ideal Industries, Inc.
  5. Ilscq; a branch of Bardes Corporation.
  6. NSi Industries LLC.
  7. O-Z/Gedney; a brand of the EGS Electrical Group.
  8. 3M; Electrical Markets Division.
  9. Tyco Electronics.
- B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

### 2.3 SYSTEM DESCRIPTION

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.

## PART 3 - EXECUTION

### 3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Stranded Copper.
- B. Branch Circuits: Stranded Copper.

### 3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Exposed Feeders: Type XHHW-2 or Type USE, single conductors in raceway.
- B. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: XHHW-2 or Type USE, single conductors in raceway.
- C. Exposed Branch Circuits: XHHW-2 or Type USE, single conductors in raceway.
- D. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: XHHW-2 or Type USE, single conductors in raceway.

## SECTION 16120 - CONDUCTORS AND CABLES

### 3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Complete raceway installation between conductor and cable termination points according to Section 16130 "Raceways and Boxes" prior to pulling conductors and cables.
- B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

### 3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material.
  - 1. Use oxide inhibitor in each splice, termination, and tap for all conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm) of slack.

### 3.5 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 16075 "Electrical Identification."
- B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

### 3.6 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
  - 1. After installing conductors and cables and before electrical circuitry has been energized, test feeder conductors for compliance with requirements.
  - 2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
  - 3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.
    - a. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

## **SECTION 16120 - CONDUCTORS AND CABLES**

- b. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.
- B. Test and Inspection Reports: Prepare a written report to record the following:
  - 1. Procedures used.
  - 2. Results that comply with requirements.
  - 3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.
- C. Cables will be considered defective if they do not pass tests and inspections.

**END OF SECTION**

## SECTION 16130 - RACEWAYS AND BOXES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Metal conduits, tubing, and fittings.
  - 2. Nonmetal conduits, tubing, and fittings.
  - 3. Boxes, enclosures, and cabinets.
  - 4. Handholes and boxes for exterior underground cabling.

#### 1.3 DEFINITIONS

- A. ARC: Aluminum rigid conduit.
- B. GRC: Galvanized rigid steel conduit.
- C. IMC: Intermediate metal conduit.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For raceways, fittings, hinged-cover enclosures, and cabinets.

### PART 2 - PRODUCTS

#### 2.1 METAL CONDUITS, TUBING, AND FITTINGS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. AFC Cable Systems, Inc.
  - 2. Allied Tube & Conduit.
  - 3. Anamet Electrical, Inc.
  - 4. Electri-Flex Company.
  - 5. O-Z/Gedney.
  - 6. Picoma Industries.
  - 7. Republic Conduit.
  - 8. Robroy Industries.
  - 9. Southwire Company.

## SECTION 16130 - RACEWAYS AND BOXES

10. Thomas & Betts Corporation.
11. Western Tube and Conduit Corporation.
12. Wheatland Tube Company.

- B. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. GRC: Comply with ANSI C80.1 and UL 6.
- D. IMC: Comply with ANSI C80.6 and UL 1242.
- E. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- F. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.
- G. Joint Compound for IMC or GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

### 2.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  1. AFC Cable Systems, Inc.
  2. Anamet Electrical, Inc.
  3. Arcco Corporation.
  4. CANTEX Inc.
  5. CertainTeed Corporation.
  6. Condux International, Inc.
  7. Electri-Flex Company.
  8. Kraloy.
  9. Lamson & Sessions; Carlon Electrical Products.
  10. Niedax-Kleinhuis USA, Inc.
  11. RACO; Hubbell.
  12. Thomas & Betts Corporation.
- B. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. RNC: Type EPC-80-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.
- D. LFNC: Comply with UL 1660.
- E. Fittings for RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.
- F. Fittings for LFNC: Comply with UL 514B.

## SECTION 16130 - RACEWAYS AND BOXES

- G. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

### 2.3 BOXES, ENCLOSURES, AND CABINETS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Adalet.
2. Cooper Technologies Company; Cooper Crouse-Hinds.
3. EGS/Appleton Electric.
4. Erickson Electrical Equipment Company.
5. FSR Inc.
6. Hoffman.
7. Hubbell Incorporated.
8. Kraloy.
9. Milbank Manufacturing Co.
10. Mono-Systems, Inc.
11. O-Z/Gedney.
12. RACO; Hubbell.
13. Robroy Industries.
14. Spring City Electrical Manufacturing Company.
15. Stahlin Non-Metallic Enclosures.
16. Thomas & Betts Corporation.
17. Wiremold / Legrand.

- B. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

- C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

- D. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, galvanized, cast iron with gasketed cover.

- E. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 4x with continuous-hinge cover unless otherwise indicated.

1. Metal Enclosures: Stainless Steel.
2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

- F. Cabinets:

1. NEMA 250, Type 4x stainless-steel box with removable interior panel.
2. Metal barriers to separate wiring of different systems and voltage.

### 2.4 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

- A. General Requirements for Handholes and Boxes:

## SECTION 16130 - RACEWAYS AND BOXES

1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.
- B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Armorcast Products Company.
    - b. Carson Industries LLC.
    - c. NewBasis.
    - d. Oldcastle Precast, Inc.
    - e. Quazite: Hubbell Power System, Inc.
    - f. Synertech Moulded Products.
  2. Standard: Comply with SCTE 77.
  3. Configuration: Designed for flush burial with open bottom unless otherwise indicated.
  4. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
  5. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
  6. Cover Legend: Molded lettering, "ELECTRIC."
  7. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
  8. Handholes 12 Inches Wide by 24 Inches Long (300 mm Wide by 600 mm Long) and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.
  9. Have inserts for cable racks and pulling-in irons installed before concrete is poured.

### 2.5 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

- A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.
1. Tests of materials shall be performed by an independent testing agency.
  2. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
  3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012 and traceable to NIST standards.

## PART 3 - EXECUTION

### 3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

## SECTION 16130 - RACEWAYS AND BOXES

1. Exposed Conduit: GRC or IMC.
  2. Underground Conduit: RNC, Type EPC-80-PVC, direct buried.
  3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFNC.
  4. Boxes and Enclosures, Aboveground: NEMA 250, Type 4x.
- B. Minimum Raceway Size: 3/4-inch (21-mm) trade size.
- C. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
  2. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

### 3.2 INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
- B. Complete raceway installation before starting conductor installation.
- C. Comply with requirements in Section 16073 "Hangers and Supports for Electrical Systems" for hangers and supports.
- D. Install no more than the equivalent of three 90-degree bends in any conduit run.
- E. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- F. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
- G. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch (35mm) trade size and insulated throat metal bushings on 1-1/2-inch (41-mm) trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- H. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
- I. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.
- J. Cut conduit perpendicular to the length. For conduits 2-inch (53-mm) trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.



## SECTION 16130 - RACEWAYS AND BOXES

- K. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
- L. Comply with manufacturer's written instructions for solvent welding RNC and fittings.
- M. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 36 inches (915 mm) of flexible conduit for equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
  - 1. Use LFNC in damp or wet locations not subject to severe physical damage.

### 3.3 INSTALLATION OF UNDERGROUND CONDUIT

#### A. Direct-Buried Conduit:

- 1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Section 02300 "Earthwork" for pipe less than 6 inches (150 mm) in nominal diameter.
- 2. Install backfill as specified in Section 02300 "Earthwork."
- 3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches (300 mm) of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Section 02300 "Earthwork."
- 4. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
- 5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment.
  - a. For stub-ups at equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches (1500 mm) from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.
- 6. Underground Warning Tape: Comply with requirements in Section 16075 "Electrical Identification."

### 3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.
- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch (12.5-mm) sieve to No. 4 (4.75-mm) sieve and compacted to same density as adjacent undisturbed earth.

## **SECTION 16130 - RACEWAYS AND BOXES**

- C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch (25 mm) above finished grade.
- D. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables but short enough to preserve adequate working clearances in enclosure.
- E. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

### **3.5 PROTECTION**

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
  - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

**END OF SECTION**

## SECTION 16475 – POWER PEDESTALS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.

#### 1.2 SUMMARY

- A. This Section includes fittings, enclosures, conductors, circuit breakers, and receptacles for electrical wiring.

#### 1.3 SUBMITTALS

- A. Product Data: For enclosures, wiring devices, metering, and circuit breakers.
- B. Shop Drawings: For each pedestal and related equipment.
  - 1. Dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings. Include the following:
    - a. Enclosure types and details.
  - 2. Wiring Diagrams: Diagram power, signal, and control wiring and differentiate between manufacturer-installed and field-installed wiring. Label each wire to coordinate with factory-installed identification.
- C. Maintenance Data: For pedestals and components to include in operation and maintenance manuals.

#### 1.4 QUALITY ASSURANCE

- A. Comply with NFPA 70.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

## SECTION 16475 – POWER PEDESTALS

- a. Eaton Corporation, Marina Power & Lighting.

### 2.2 GENERAL

- A. Provide power pedestals with features as illustrated in the drawings and specified herein. The pedestals shall include circuit breakers, receptacles, meters sockets, internal wiring, and feeder terminals.
- B. The pedestals shall be configured to accept connection of single phase and three phase feeders. They shall also be configured to “loop feed” from pedestal to pedestal with a single feeder. The pedestals shall be internally wired 208Y/120 volt; as illustrated in the drawings. The utilized phases shall be selectable from within the pedestals to yield balanced feeder loads.

### 2.3 ENCLOSURE

- A. NEMA Type 3R construction, fabricated from 316 stainless steel.
- B. All hardware shall be 316 stainless steel. Exterior doors and covers shall be pad-lockable.
- C. Hinged covers over receptacles. Allow cover to close on receptacles with shore tie cords connected. Provide locking hasps for covers. Constructed of the same material as housing.
- D. Finish: Units shall be powder coat painted off-white.

### 2.4 INTERNAL WIRING

- A. XHHW or USE insulated 600V rated copper conductors.
- B. Rated for minimum capacity of 200 amperes to each pedestal, except as noted in the drawings.
- C. Power terminal block for feeders and conductors to circuit breakers. Isolated Neutral terminal. Terminals for ground conductors with bond to the enclosure.
- D. Tape markers for wire identification.

### 2.5 RECEPTACLES

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Cooper Wiring Devices; Division of Cooper Industries, Inc. (Cooper).
  - 2. Hubbell Incorporated; Wiring Device-Kellems (Hubbell).
  - 3. Leviton Mfg. Company Inc. (Leviton).
  - 4. Pass & Seymour/Legrand (Pass & Seymour)
  - 5. Cooper Crouse-Hinds.
  - 6. EGS/Appleton Electric.
  - 7. Killark; Division of Hubbell Inc.

## SECTION 16475 – POWER PEDESTALS

- B. Single "Twist Lock" Receptacles: 125 V, 30 A Configuration L5-30R; and 125/250 V, 50 A. Comply with NEMA WD 1, NEMA WD 6, and UL 498. .
- C. Single "Pin and Sleeve" Receptacles: 208Y/120 V, 4 Pole, 5 Wire, 100 A.
- D. Receptacles shall be marine grade rated for corrosive, wet environment. Allow space in the enclosure for a minimum of two receptacles for each shore tie.
- E. Receptacles shall be angled downward to minimize precipitation intrusion

### 2.6 CIRCUIT BREAKERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
  - 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
  - 3. Siemens Energy & Automation, Inc.
  - 4. Square D; a brand of Schneider Electric.
- B. General Requirements: Comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents.
- C. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
- D. Ground-Fault, Circuit-Interrupter (GFCI) Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
- E. Features and Accessories:
  - 1. Standard frame sizes, trip ratings, and number of poles.
  - 2. Lugs: Mechanical type, suitable for number, size, trip ratings, and conductor material.
  - 3. Bolt-in type.

## B. EXECUTION

### 3.1 ASSEMBLY

- A. Coordinate the pedestal features with the special requirements illustrated in the drawings.
- B. Provide tape identification marker at termination of each wire.
- C. Provide de-oxidizing compound on all internal wiring terminations and bare conductive parts to minimize corrosion.

## SECTION 16475 – POWER PEDESTALS

### 3.2 INSTALLATION

- A. Connect the pedestals as illustrated in the drawings to equalize voltage drops and loads between phases.
- B. Mount and support pedestals as illustrated in the drawings.
- C. Terminations: Coat all exposed terminations with de-oxidizing compound to minimize corrosion.
- D. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.

### 3.3 FIELD QUALITY CONTROL

- A. Prepare for acceptance tests as follows:
  - 1. Test insulation resistance for each pedestal bus, component, connecting supply, and feeder.
  - 2. Test continuity of each circuit.
- B. Testing: After installing pedestals and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.
  - 1. Procedures: Perform each visual and mechanical inspection indicated in NETA ATS, Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters.
  - 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
  - 3. Load test each receptacle: 120 volt loads at 1500 VA; 208 volt, single phase loads at 3000 VA. Maintain load for one minute, minimum.

**END OF SECTION**

WRANGELL MARINE SERVICE CENTER CONCRETE PAVING PHASE II  
 SUBMITTAL REGISTER  
 Page 1 of 8

NOTE: The list below is not all-inclusive. In addition to the requirements below, the Contractor must comply with all submittal requirements identified in the plans, specifications and directions by the Engineer.

<b>CONTRACTOR:</b> _____								
<b>ACTION CODES:</b>		NR: NOT REVIEWED	NET: NO EXCEPTION TAKEN	SSI: SUBMIT SPECIFIED ITEM		RR: DISAPPROVED, REVISE AND RESUBMIT		
		AN: APPROVED AS NOTED	MCN: MAKE CORRECTIONS NOTED					
		R: REJECTED						
Spec. Division	Article	Description	Date Rec'd from Cont'r	Reviewer	Action Code	Date FWD to Cont'r	Remarks	
00360 (00830) (00840)	- (C) (A)	List of Subcontractors with Contact Information, Schedules, and Sales Tax Forms						
00500	-	Agreement Form						
00610	-	Performance Bond						
00620	-	Payment Bond						
00700	5.2 C	Insurance Policy Certificates						
00700	6.2 E	Evidence of Quality of Materials (reports or tests)						
00700	6.3	Monthly Updates of the Progress Schedule						

WRANGELL MARINE SERVICE CENTER CONCRETE PAVING PHASE II  
 SUBMITTAL REGISTER  
 Page 2 of 8

**CONTRACTOR:** \_\_\_\_\_

ACTION CODES:      NR: NOT REVIEWED                      NET: NO EXCEPTION TAKEN                      SSI: SUBMIT SPECIFIED ITEM  
 AN: APPROVED AS NOTED                      MCN: MAKE CORRECTIONS NOTED                      RR: DISAPPROVED, REVISE AND  
 R: REJECTED                      RESUBMIT

Spec. Division	Article	Description	Date Rec'd from Cont'r	Reviewer	Action Code	Date FWD to Cont'r	Remarks
00700 (01300) (01010)	6.4 (1.1 B1) (1.9 2d)	Proposed Substitutes or "Or-Equal" Items					
00700 (01010)	6.12 A (1.9 2d)	Shop Drawings					
00700 (01010)	6.12 B (1.9 2d)	Samples					
00700	6.15	Daily Reports					
00700	6.18	Request for Approval to Operate Valves on In-Service Water System					
00700	11.3 D2	Description of Equipment and Identifying Number					
00700	16.6	Affidavit that no Gratuity or Conflict of Interest has Occurred					
00700	16.8 A	Certified Permit					
00800 (01700)	14.9 A (1.3-7)	Letter of Clearance from ADOL (all Employment Security Taxes paid)					



WRANGELL MARINE SERVICE CENTER CONCRETE PAVING PHASE II  
 SUBMITTAL REGISTER  
 Page 3 of 8

**CONTRACTOR:** \_\_\_\_\_

ACTION CODES:    NR: NOT REVIEWED                      NET: NO EXCEPTION TAKEN                      SSI: SUBMIT SPECIFIED ITEM  
 AN: APPROVED AS NOTED                      MCN: MAKE CORRECTIONS NOTED                      RR: DISAPPROVED, REVISE AND  
 R: REJECTED                      RESUBMIT

Spec. Division	Article	Description	Date Rec'd from Cont'r	Reviewer	Action Code	Date FWD to Cont'r	Remarks
01010	1.9 2a	Plan of Operation					
01010	1.9 2b	Project Overview Bar Chart Schedule					
01010	1.9 2c	Procurement Schedule					
01300	1.1 B2	Schedule of Permits and Licenses to be Submitted					
01300	1.1 B3	Progress Schedule					
01300	1.1 B4	Material Safety Data Sheets					
01300 (01550)	1.1 B5 (1.3 C)	Staging and Traffic Maintenance Plan					
01300	1.1 B6	Temporary Erosion and Pollution Control Plans					
01300 (01010)	1.1 B7 (1.9 2e)	Letter: Designated Supervisor					
01300	1.1 B8	Letter: Designated Safety Representative and EEO Officer					



WRANGELL MARINE SERVICE CENTER CONCRETE PAVING PHASE II  
SUBMITTAL REGISTER  
Page 5 of 8

**CONTRACTOR:** \_\_\_\_\_

ACTION CODES:	NR: NOT REVIEWED	NET: NO EXCEPTION TAKEN	SSI: SUBMIT SPECIFIED ITEM
	AN: APPROVED AS NOTED	MCN: MAKE CORRECTIONS NOTED	RR: DISAPPROVED, REVISE AND RESUBMIT
	R: REJECTED		

Spec. Division	Article	Description	Date Rec'd from Cont'r	Reviewer	Action Code	Date FWD to Cont'r	Remarks
01700	1.3-2	Maintenance Stock Items					
01700	1.3-3	Completed Record Drawings					
01700	1.3-4	Certificates of Inspection					
01700	1.3-5	Releases from Parties Entitled to Claims					
01700	1.3-6	Completed Certificates of Compliance and Release					
01700	1.3-8	O&M Manual					
01700	1.3-9	DOL Notice of Completion of Public Works					
02202 (02203)	3.1 F (3.1-2)	Permit Numbers for Waste Disposal Sites (if requested)					
02401	1.2 A	Sanitary Sewer Pipe: Material Certifications					
02401 (02502)	1.2 B (1.2 B)	Frames and Grates: Catalogue Cuts and Material Certifications					



WRANGELL MARINE SERVICE CENTER CONCRETE PAVING PHASE II  
 SUBMITTAL REGISTER  
 Page 7 of 8

**CONTRACTOR:** \_\_\_\_\_

ACTION CODES:    NR: NOT REVIEWED                      NET: NO EXCEPTION TAKEN                      SSI: SUBMIT SPECIFIED ITEM  
 AN: APPROVED AS NOTED                      MCN: MAKE CORRECTIONS NOTED                      RR: DISAPPROVED, REVISE AND  
 R: REJECTED                      RESUBMIT

Spec. Division	Article	Description	Date Rec'd from Cont'r	Reviewer	Action Code	Date FWD to Cont'r	Remarks
		Product Data Sheets					
03301	2.8	Reinforcing Steel Material Certifications					
03301	2.10 B	Test Results and Certifications for Materials					
03301	2.10 B	Detailed Concrete Mix Design					
03301	2.10 B	Samples of Concrete					
03301	2.11 D	Test Reports					
03301	2.13 Q	Falsework Drawings					
03301	3.15 H	Supporting Finishing Machine Rail Details					
03305	1.3 A	Concrete Mix Design					
03305	1.3 B	Reinforcement Fabrication Drawings					

